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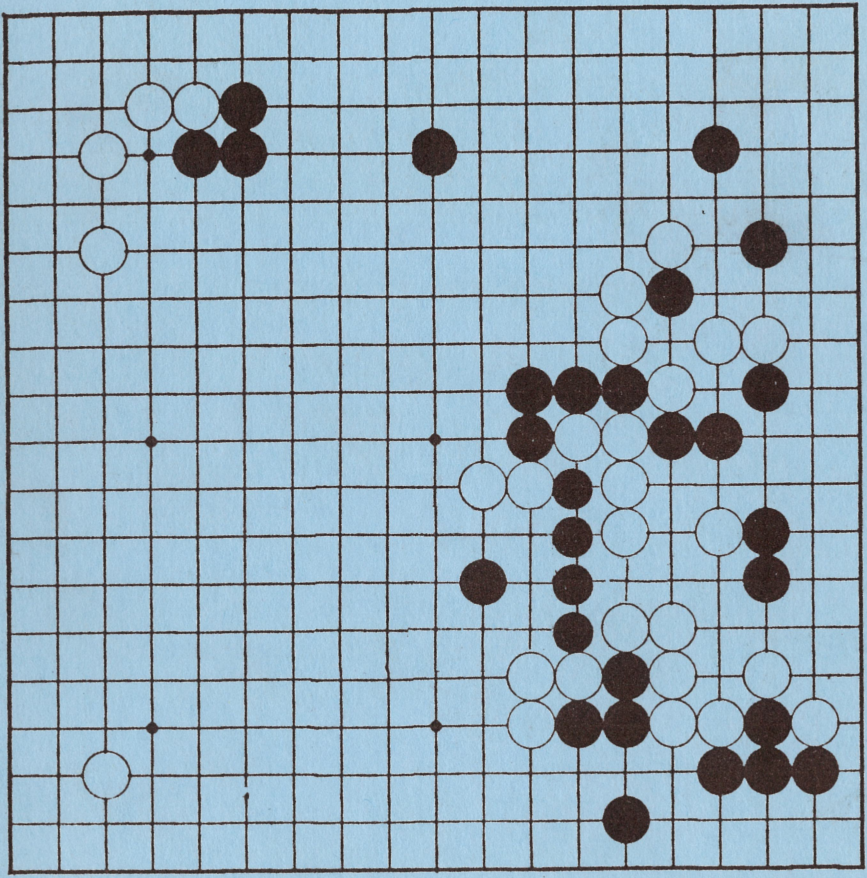

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All three magazines are monthlies. Prices quoted above are for pickup at Zen Oriental Bookstore, New York City. For mailing within the U.S. or Canada, add $.75 per copy.

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Standard Equipment

Stones (plastic) and board in a cardboard box (small size)	$15.00
Go stones (plastic, 6mm)	8.95
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MY CORNER

by Terry Benson

This issue completes the sixth year of the recent incarnation of the American Go Journal and the fourth under my editorship. I am not pleased at the persistent delays in turning out the magazine, but I am confident that the consistent high quality and dependable output of the AGJ will maintain its importance to the Go players of the U.S. Over the last two years the number of assistants on the "staff" has grown tremendously, making the job easier for all. It is hard to remember that John Stephenson put out two years of the Journal by himself. The 120+ hours involved in each issue is a heavy task. A double issue like this one is 200+ hours and would be impossible if it weren't for the involvement of Barbara Calhoun, Don Wiener, Matthias Thim, Roy Laird, Vinnie Falci in New York and our contributing editor/writers, Bruce Wilcox (of Ann Arbor and now Boston), Bob Meyers (Boston) and Dennis Waggoner(Portland). Bob Rusher, Tako Onishi, Milton Bradley, and others(not on the masthead)are equally part of the AGJ team.

In the last two years the AGA has also expanded its "team". There are some twenty-four members of the Executive Committee representing most of the major Go areas in the country. The Western and Eastern Committees meeting once a year at the Championships pass on the major decisions facing the AGA and bear the responsibility for seeing that the organization is administered effectively. This past September the two committees unanimously entrusted me with the Presidency of the AGA. I have avoided taking on the title although I have been performing that office for some time. My desire has been to spread the work of the AGA among many individuals. The experience with the British Go Association and its decentralized committee structure was my impetus for setting up the AGA Executive Committees. The sheer size of the U.S. makes a multi-centered organization imperative - provided only that the "glue" of the structure, the AGA, is maintained.

My hope is that consistent effort to expand Go throughout the country by incorporating the many effective organizers in the U.S. into the AGA's structure will aid Go players wherever they are. The potential for the growth of Go in this country is immense.

My hope is that a consistent effort to spread the game will pay off. So many Go organizers overload themselves with enthusiastic projects that they "blow out" after a year or two. I am past the danger point and I have thankfully found a number of individuals willing to lend a hand. If each player and each club contribute what they can in time, money, and effort to help the whole organization,the immense potential for Go in this country may, some day, be realized; and the individual organizers will have the help and feel the support they need in order to continue doing the work for the mass of players.

AGJ STAFF

Editor:	Terry Benson	Associate Editors:	Barbara Calhoun
Contributing Editors:	Robert Myers		Matthias Thim
	Dennis Waggoner		Don Wiener
	Bruce Wilcox	Distribution:	David Relson
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	Vinnie Falci	Photo Diagrams:	Robert Rusher
	Roy Laird	Photographer:	Terry Benson
Translator:	Tako Onishi		

TOURNAMENT AND EVENT CALENDAR

9&10 February: 21st New Jersey Open, Bell Labs, Murray Hill, NJ. Play starts at 10:00 a.m. each day. Entry fee $10 for dan players, $5 for kyu players. Contact Bob Ryder at work: (201) 582-3977.

17 February: Baltimore Go Club Tournament. 10:30 a.m. at Levering Hall, Johns Hopkins University, Baltimore, Md.. Contact Jim Pickett at (301) 377-2353.

3&4 May: Second Quebec Open at Montreal. For information contact Tibor Bognar, 7600 Lajeunesse #511, Montreal H2R 2Z8, Quebec.

25 May: Maryland Open, Levering Hall, Johns Hopkins University. For details contact Jim Pickett (301) 377-2353.

31 May: Ann Arbor Go Club Tournament. 9:30 a.m. at 2050 Frieze Bldg. University of Michigan, Ann Arbor, MI. Contact Dave Relson, 514 Keech, Ann Arbor, MI 48103, (313) 995-3636.

2&3 June: New Portland Go Club Weekend Tournament. 9:00 a.m. at Tualatin Valley Workshop, 18950 S.W. Shaw, Aloha, Oregon 97005. Contact Doug Cable, 2922 N.E. 18th, Portland, OR 97212, (503) 281-8328, or Peter Freedman, 2424 N.E. 22nd, Portland, OR 97212, (503) 281-9200.

26 July-9 August: preliminary dates for the 24th European Go Congress to be held on the island of Krk off the Yugoslavian coast near Rijeka. Details to be announced later.

30&31 August: 1980 UNITED STATES CHAMPIONSHIPS. Eastern Site: Hotel Lexington, New York City. Western Site: Los Angeles. Details will be announced later. SAVE THE DATE for your 1980 Go playing vacation!

15&16 September: New Portland Go Club Weekend Tournament. See above.

11-13 October: 1980 Canadian National Championship. Details to be announced later. Contact Tibor Bognar, (514) 274-1096.

THE SECOND QUEBEC OPEN TOURNAMENT

The Second Quebec Open Tournament will be held in Montreal on May 3rd & 4th (Saturday and Sunday), 1980. It is open to all players without restrictions, except for Quebec residents, who must be AQJC members (possibility to join when registering). We are hoping for a large participation of players from other provinces and abroad.

Six rounds will be played (three each day) using the Swiss McMahon system and Japanese rules. Time: 1¼ hours per player; Byo-yomi: 30 seconds. Komi: 5½ points. Tournament director: Jean-Luc Reiher.

Registration: Sat., May 3rd from 9:00 to 9:30 a.m. First round starts at 10.

Fees: Dan: $15, 1-5 kyu: $12, 6-10 kyu: $10, 11-15 kyu: $8, 16+ kyu: $5.

Prizes: 1st prize: 1980 Quebec Open Champion trophy plus $150.00 in cash.
2nd: Trophy plus $75.00 in cash.

Many other prizes and trophies for players of all ranks, including a prize for the Quebec resident with the best result.

Participants will be under obligation to play all the games, unless they notify the tournament director before the tournament begins. A deposit of $10 will be collected from all, refundable only if the player finishes all his games.

For more information contact Tibor Bognar, 7600 Lajeunesse #511, Montreal H2R 2Z8 Quebec. Tel. (514) 274-1096.

French Go Magazine

The Quarterly French Go Review is available by writing to: Go-Revue Francaise de Go, 3, Allée du Bas, Les Authieux, 76520 Boos, France. The cost is FF40.00 per year for the 50page magazine sent by seamail.

GO Tournament

Saturday

31 May 1980

Ann Arbor Go Club
2050 Frieze Bldg
University of Michigan
Ann Arbor, Michigan

All games handicapped
8 players per section
Cash Prizes

9:30AM Registration
10:00AM Play Begins
Fee: $5.00

American Go Association
Membership Required
(Available at the door)

Bring Go sets and game clocks

For further information contact:
Ann Arbor Go Club
c/o Dave Relson
514 Keech
Ann Arbor, MI 48103
(313) 995-3636

List of Publications Available through AGA

	"Rules and Elements of Go" by James Davies	$1.25
	"Go For Beginners" by Iwamoto Kaoru, 9 dan	$2.45
G 2p	"Basic Techniques of Go" by Haruyama, 7 dan & Nagahara, 5 dan	$5.75
G 5p	"The Middle Game of Go" by Sakata Eio, 9 dan	$5.75
G 6p	"Strategic Concepts of Go" by Nagahara Yoshio, 6 dan	$5.75
G 7p	"The 1971 Honinbo Tournament" by Iwamoto Kaoru, 9 dan	$6.00
G 10	"In the Beginning" by I. Ishigure, 8 dan	$5.15
G 11	"38 Basic Joseki" by K. Kosugi & James Davies	$6.00
G 12	"Tesuji" by James Davies	$5.75
G 13	"Life and Death" by James Davies	$5.15
G 15	"The Endgame" by Ogawa Tomoko, 4 dan & James Davies	$6.00
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G 25	"Appreciating Famous Games" by Ohira Shuzo, 9 dan	$5.75
G 26	"The Direction of Play" by Kajiwara Takeo, 9 dan	$6.00
G 27	"Kato's Attack and Kill" by Kato Masao, Honinbo	$5.75
G 28	"Lessons in the Fundamentals of Go" by Kageyama Toshiro, 7d	$6.00

Please add $.50 shipping per book. Mail your check or money order to the AGA: P.O. Box 397, Old Chelsea Station, New York, NY 10011, Attn: Book Orders.

AGA "Geta" T-Shirts are available at $5.25 including postage.

GREATER WASHINGTON GO CLUB FALL TOURNAMENT

#	NAME	RANK	1	2	3	
OPEN SECTION						
1	T. Ishikawa	6d	5	2	8	
2	Y. Ko	6d	6	1	3	
3	Y. S. Paeng	6d	7	8	2	1st
4	J. Maier	4d	8	7	6	
5	D. Wiener	4d	1	6	7	
6	L. Kuk	3d	2	5	4	
7	J. Ozawa	3d	3	4	5	
8	Y. Nankawa	2d	4	3	1	
SECTION A						
9	T. Benson	1d	13	10	12	
10	T. Tolya	1d	14	9	11	
11	M. Thim	1d	15	12	10	1st
12	M. Kim	2k	16	11	9	
13	S. Hellberg	2k	9	14	15	
14	W. Lebenhein	2k	10	13	16	
15	L. Kaufman	2k	11	16	13	
16	J. Goon	3k	12	15	14	

#	NAME	RANK	1	2	3	4	5	
SECTION B								
17	S. Zimmerman	4k	18	19	20	20	19	
18	B. Bernstein	5k	17	20	19	-	-	
19	E. Lawhon	5k	20	17	18	-	17	1st
20	J. Cho	5k	19	18	17	17	-	
SECTION C								
21	W. Litt	6k	25	26	28			
22	J. Delaney	6k	26	25	24			
23	P. Blackburn	7k	27	24	26			
24	J. Pickett	7k	28	23	22			
25	E. Casey	7k	21	22	27			
26	Y. H. Kim	9k	22	21	23			1st
27	S. Broadbent	9k	23	28	25			
28	P. Trimmer	9k	24	27	21			
SECTION D								
29	G. Letourneau	10k	32	-	30			
30	E. Blackmore	11k	33	34	29			1st
31	G. Ratterman	12k	34	32	33			
32	J. Van Huych	13k	29	31	34			
33	B. Paulet	14k	30	-	31			
34	J. Stewart	15k	31	30	32			

The Greater Washington Go Club Fall Tournament was held on the campus of Georgetown University on October 7th. 34 players participated. Chizu Kobayashi, pro 5 dan, attended and gave a simultaneous demonstration after the tournament.(Tournament pictures at the right.)

* * *

NEW YORK GO CLUB FALL TOURNAMENT

by Jerry Pinto

A small field met for the New York Go Club Fall Tournament on October 14. Takao Matsuda won the event with a score of 3-0. Second place went to K.C. Kuo after he beat Ron Snyder in a play-off, while Ed Downes won Section B with a 3-0 score.

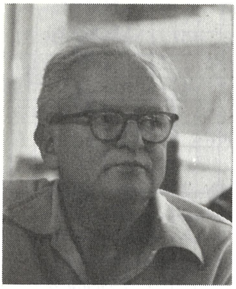
#	NAME	RANK	1	2	3	4	
1	T. Matsuda	6d	4	3	5		1st
2	K. Nishiyama	5d	5	6	3		
3	R. Snyder	5d	6	1	2	4	
4	K. C. Kuo	5d	1	5	6	3	2nd
5	H. Gonshor	5d	2	4	1	6	

#	NAME	RANK	1	2	3	4
6	S. Matsuzawa	3d	3	2	4	5
7	A. Yoshihara	1d	8	9	10	8
8	F. Shore	1d	7	10	-	7
9	J. Exter	1k	10	7	-	
10	E. R. Downes	2k	9	8	7	

* * *

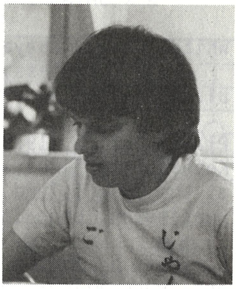
Baltimore Go Club News

Baltimore City's 4th Annual Go Tournament was again sponsored by the Mayor's Office of Special Projects and directed by the Office's Go instructor , Bill Sullivan. This handicap tourney was held August 18th at War Memorial Plaza. Playing in three sections, fourteen contenders entered this year. Section A was won by John Moses of Falls Church, Va. Ed Wallace from Ellicott City, Md., won the B section. Baltimore was victorious in section C, won by J. Sattel. Channel 14 gave coverage of the event on the early evening TV news, during which a rudimentary explanation of the game was given.

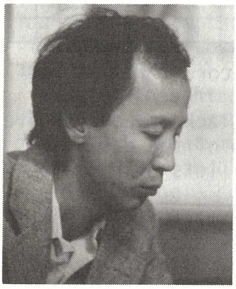


Art Lewis, Secretary
Greater Wash. Go Club

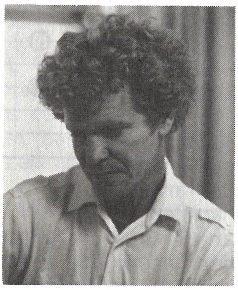
A General View of the GWGC
Fall Tournament Oct 7th



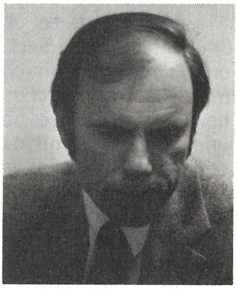
John Moses, Tournament Director



Yoong Paeng, 6 dan
Pittsburg - 1st

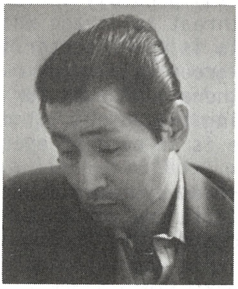


Jim Pickett, Pres.
Baltimore G. C.



Ray Kukol, Liason
for Pro visit

John Maier, V.P. GWGC
& AGA PROC Chairman



Yas Nankawa, 3 d
New York City

(Photos by Terry Benson)

INDIANA UNIVERSITY CLUB NEWS

by Marvant Duhon

The I.U. Go Club is an informal weekly gathering in the Den of the Indiana Memorial Union on Fridays from 8 pm to 1 am. There are neither dues nor officers. About 6-14 Go players, from a pool of perhaps 2-3 dozen who attend at various times, may be found on a given Friday night. There is 1 Shodan, a 1-kyu, and a scattering of lower ranked players with very few (only one regular) below 15 kyu. There are at least 5 AGA members.

The principal organizer is Paul Purdom whose address is: Chairman, Computer Science Dept., Indiana University, Bloomington, In. 47401.

The I.U. Club hosted a "tournament" with several Michigan Go players who came to visit on Oct. 6, 1979.

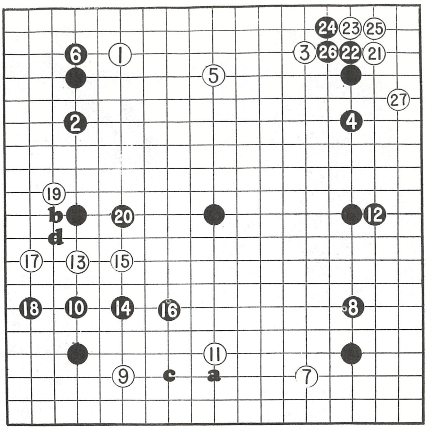
❻

A KOBAYASHI TEACHING GAME

White: Chizu Kobayashi,
Professional 5-Dan
Black: Milton N. Bradley

Played Oct. 5, 1979 as part of Ms. Kobayashi's Simultaneous Exhibition at the Long Island Go Club in Huntington, Long Island, N.Y.

Comments by Milton N. Bradley (MB) and Bruce Wilcox (BW).



Game Record 1 (1-27)

MB: My "theme" as Black in this game was "stay out of trouble." It was my first attempt to consciously apply Bruce Wilcox's Sector Theory throughout a game in which I took a large handicap. In retrospect, I wonder how I could have been so far off base so often. This lack of perspective under stress indicates either incomplete accumulation of the basic concepts, or a psychological problem. In either case, lots of room for improvement is manifested.

B2: BW: Playable, but to use handicap stones you need to attack as soon as possible. The squeeze at W5 is better (high given the center stone, low otherwise).

MB: I deliberately avoided W5 to stay out of the "standard" continuation after White caps this stone.

B6: MB: I was aware that taking the oba at a or playing tetchu on one of the sides was probably better, but this move emphasized safety, together with the threat to invade White's territory later (e.g. B28).

BW: This is not a sector improvement, it creates no new sector lines. The Black group is already out in the open. This is a purely territorial move, so there's no rush for White to answer it, hence it is much too slow. During the fuseki, it makes no sense to secure claimed territory unless one is in need of eyespace. W11 is the logical oba to expand control.

B12: MB: Avoids symmetry as well as reinforcing both above and below. Black waits to see how White will attack.

B14: BW: According to theory--run to daylight and don't get enclosed!

B16: BW: Simple and acceptable.

B18: BW: Poor. Since Black's position is undercut on both sides and can be invaded directly at san-san, this move isn't worth much. Black should defend against the invasion at b or go on the offense at c instead.

MB: Bruce is right, of course, but my idea was that White wouldn't invade at san-san yet because of the weakness in the 7-9-11 group, and this practically forces White's reply. My groups are now much more secure when I finally get to c .

B20: BW: Ignoring the contact fight started by White is abnormal unless one is planning to abandon the side stone entirely, in which case B20 should not be played. The contact fight move to the right of 19 is possible, as is a tenuki.

MB: I was preparing for d , to cut White apart.

B24: BW: Bad choice of joseki. Black should play at 95 to take sente. Black already has invested energy making territory with B12; half its value will be wasted if White lives above it. White is thin on the upper side--no territory, but a sabaki structure. Black will lose more than he gains given the position of W1&5.

MB: My idea was to prevent White from getting settled on the upper side too easily, in the expectation that my invasion to follow would be damaging, but I bungled it!

B28: BW: Locally it fails to invade and must be at 29. Globally, B at a is essential shape on the upper side.

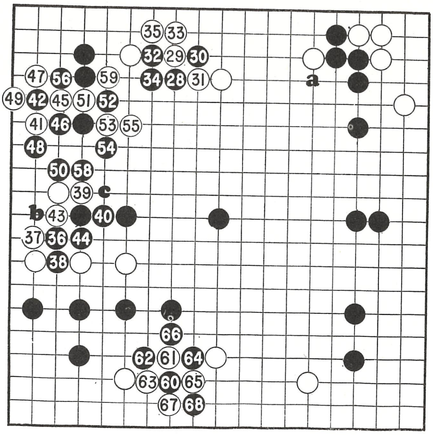
B30: BW: Doesn't work.

MB: So I realized, too late!

B36: MB: Cuts off B13 and 15 (else Black and White both run eyeless) with great advantage to Black.

B40: BW: No. This must be at c to avoid having to make bad shape at 44 later and to control the center. You should play the severest contact fight move you absolutely can get away with.

MB: I thought I did! I was afraid to leave such a powerful player with that much aji.



57 at 42
Game Record 2 (28-68)

B42: BW: Black should play at 47 to avoid starting a contact fight. Use contact moves for defense, sector moves for offense.

MB: I chose B42 deliberately so that I could attack the left side group. At the time, I didn't foresee that it would mean losing the corner in return. The mistake at B28 becomes really costly here.

B44: BW: Bad shape caused in part by B40.

B46-50: BW: Black becomes fragmented with many defects. White is also being attacked, but at a 7-stone handicap, the attacks could easily misfire.

MB: I went into this line because I didn't believe that White's position would be viable after B50, so I assumed that she would avoid it. Unfortunately for me she didn't. At this point, I still felt good about my position. White's side group is on the verge of death, and the 41-49 stones are not yet alive.

B52: BW: DO NOT PLAY AT 53. Never give away a linkage without a struggle. The difference is likely to be loss of sente. B52 as played does not violate contact fight theory, though it does prolong instability. Besides which, this is almost a sabaki fight, which uses slightly different operating principles.

B56: BW: Black cannot live here, so this only loses a good ko threat.

MB: Of course! This was dumb.

B58: MB: Unfortunately necessary. I missed this in my reading before playing 52, else I would never have gone into this line. However, as per the general rule, Black dies in sente!

W59: MB: Necessary, and captures a very large corner. White is rapidly catching up.

B60: MB: The natural follow-up to B16, which I had been patiently awaiting my chance to play.

BW: Good move!

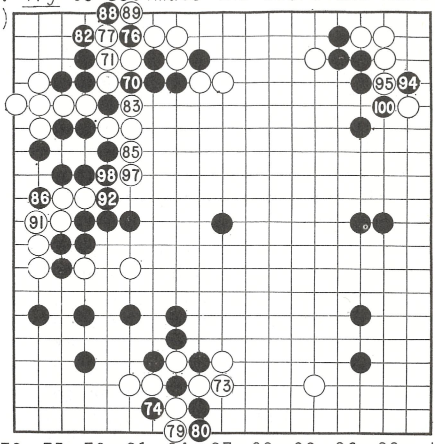
B62: BW: This could also be at 65 to live in White territory, making White form a worthless wall. That would probably be better, since the game is profit oriented at present.

B68: MB: White has opted for ko, and Black obliges. There is no question that Black has many more ko threats, and that White can't afford to lose this ko. Therefore, I realized that if I chose my threats carefully, I was going to get some substantial compensation elsewhere when White finally didn't answer one of my threats.

BW: This ko is nice to win, but it is a 2-step ko and White has an internal threat (at 79). Losing the ko will mean an entirely wasted move in this area. Ko is tricky at 7 stones; judging the size of threats is a problem. Question: DO YOU NEED KO TO WIN? I don't know the answer in this game, but I doubt it.

MB: I couldn't possibly estimate the score reliably at the point, at 7 stones against a 5-Dan Professional!

(Ed: Reliability is not the point. Try to estimate the score and make a choice--it's better than guessing.)



72, 75, 78, 81, 84, 87, 90, 93, 96, 99 - ko.

Game Record 3 (69-100)

B70: MB: Played to maximize the number of threats in this area.

B82: BW: Black goes into debt in ko, White's outside move helps him.

B86: BW: More debt. White can now save 3 stones, minimizing local loss.

MB: I thought this was necessary.

W91: BW: This ko is huge. White has returned the debt of B86.

B94: BW: More debt.

MB: My idea was that I was going to kill this corner as compensation for losing the ko.

B98: BW: W97 is a bluff, it does not save White's stones, so Black should ignore it and give up the 3 stones.

MB: We were rushed for time, so I couldn't read this out completely, and the obvious connection loses. I reasoned that, in any event, this was White's last threat. I would capture the side and, when White wins the ko, I would win the upper right corner as well and with it the game. White also "conned" me by appearing surprised that I considered alternate plays before connecting here.

W101: MB: As expected. W is out of ko aji.

BW: White has no more big threats or bluffs. White loses the corner, wins the ko, gets Black's debts and can seal off the upper side while threatening to revive the corner.

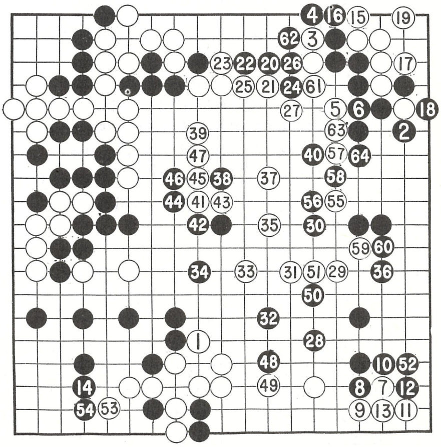
B102: MB: A play at 117 kills the corner unequivocally, but still leaves lots of aji for White.

W103: MB: A "con" job, and I fell for it! Black believes that the corner is unequivocally dead, but it's not.

B104: BW: Gives White the option of living in the corner!!!!!

MB: A simple sagari completes the capture of the corner, but I simply failed to even try to read out White's options. This comes of only playing players who aren't strong enough to really "apply the heat" to your game.

W105: BW: A nice kikashi to help influence on the upper side. It also collects Black's debt from the ko trade.



Game Record 4 (101-164)

W107: MB: Expected, but I now get sente.

W109: BW: I would expect White to continue the joseki with 152 to cut into Black's right side.

MB: So did I. Maybe White is easing up. Is the game that close?

B110: BW: Naturally! Sente and profit are better than a worthless wall (the ko loss forces this choice).

B114: BW: Slightly better at 153, but the upper right corner is even bigger.

MB: I was laboring under the mis-apprehension that the upper right corner was dead.

W115: Hello!

W119: and lives.

B120: MB: Trying to use the 104, 116 plays to gain compensation for the debacle.

B126: MB: The last 7 moves were played rapidly and recorded afterward. This 126 is dumb, since a play at 161 is clearly correct. Maybe the mistake was in making the game record.

B128: MB: This looks to me like the key point in this area. It expands Black's territory while flattening White's. A White move here would do the converse.

BW: Ok, but since 161 is White's sente, Black has not ended up with much. Aji keshi may be the end result of Black's invasion at 120 because B might have built up a substantial moyo by playing from the outside, threatening the invasion. Since White's upper side would still be undercut (by 104), White could only protect and not make territory.

W129: BW: A careful sector line choice.

B130: MB: Trying to keep it simple, while expanding my moyo.

BW: Unless Black is planning to kill the White stones, the wall built by 130 is not very useful. Black should consider a roundabout attack left of 7, shoring up his wall while reducing White's area. The game is close. Black needs points but doesn't need to risk everything on a kill.

B134: MB: I can't let White play here.

W135: MB: Expected, and natural.

B136: MB: Now that the White stones can connect to one side or the other, I closed off my territory.

B130-W137: BW: The net effect is to make worthless Black walls, minimize the scale of the capture of W13&15 and give White a useful play at 137.

B138: MB: To prevent a large White territory in the center.

W139: MB: Closing off some territory and making a threat, which I missed.

B140: MB: Here, I considered a peep to the left of 135,137, but decided that it was too small, and White would ignore it to take sente elsewhere. Instead, I expanded my side territory some more.

BW: Better left of 7.

W141: MB: Clever!

B142: MB: Sacrificing 138 and gaining sente.

B148: MB: Retains sente and expands my territory a bit. Mainly, it reduces White while strengthening the 128-132 linkage.

B152: MB: Now there are three main points to play: at 152, 161 and 153.

BW: All points are gote for Black. 153 is worst of all, having no threat to White and being smallest in territory. Others are either White's sente or White's gote followed by his sente.

After a few more moves, the game had to be suspended because of time restrictions. Ms. Kobayashi evaluated it at that point as "very close", which only demonstrates once again how many dumb plays it takes to throw away a 7-stone handicap. However, don't despair--you can do it if you try hard enough!

THE 2nd WORLD AMATEUR GO CHAMPIONSHIP

Sponsored by the Nihon Ki-in and Japan Airlines, with support from The Ministry of Foreign Affairs, The Agency for Cultural Affairs and The Japan Foundation.

Venue: The Nihon Ki-in (7-2, Gobancho, Chiyoda-ku, Tokyo 102. Tel: (03)262-6161

Date: Orientation and Welcome Party: Monday, March 24th.
Tournament: Tuesday, March 25th to Saturday, March 29th, 1980.

Participants: 32 players from 20 countries:

ASIA: 11 players (4 countries)
Hong Kong-1, Japan-4, People's Republic of China-3, Republic of Korea-3.

EUROPE: 11 players (10 countries)
1979 European champion plus one player from each of the following countries: Austria, Czechoslovakia, F.R. Germany, France, German Democratic Republic, Netherlands, Poland, United Kingdom, U.S.S.R., Yugoslavia.

NORTH AMERICA: 4 players (2 countries)
Canada-1, U.S.A.-3.

OCEANIA: 2 players (2 countries)
Australia-1, New Zealand-1.

SOUTH AMERICA: 4 players (2 countries)
Argentina-2, Brazil-2.

Competition regulations.

1) The championship will consist of a tournament with 32 participants.
2) The eight players who win their first two games will play an additional three rounds to decide the 1st to 8th places. The eight players who win in the first round but lose in the second round, together with the eight players who lose in the first round but win in the second round (total 16 players) will play an extra four rounds to determine the 9th to 12th places.
3) All games will be played on even (tagai-sen), with Black giving a komi of 5½ points.
4) The first and second rounds and the 3rd, 4th and 5th rounds in the section to decide the 1st to 8th places will have a time allowance of three hours per player with an additional one minute of byo-yomi per move. The 3rd to 6th rounds in the section to decide the 9th to 12th places will have a time allowance of one and a half hours per player with an additional one minute of byo-yomi per move. Tournament clocks will be used for all games.
5) The tournament will follow the official "The First World Amateur Go Championship Rules". Any problems or disputes will be settled by the chief referee.
6) Referees will be Nihon Ki-in professional players.
7) A drawing will be held at the Welcome Party on the 24th of March to determine the pairing order.

Supplementary Notes

One official from each of the following countries or organizations will be invited to attend the tournament: Argentina, Canada, New Zealand, U.S.S.R., People's Republic of China, Republic of Korea, European Go Federation. These officials will supervise and assist the players or teams designated by the tournament organizers.

The tournament sponsors will bear the following expenses for the 32 competitors and the seven guest officials:

1) Transportation expenses: Round trip between the participant's home city and Tokyo (by the route designated by the sponsors), as well as transportation costs incurred within Japan related to the tournament.

2) Accommodation expenses for seven nights, for the period from March 23rd through March 29th, will be borne by the sponsors. However, participants must stay at the hotel designated by the sponsors.

3) Meals: Meal coupons or cash will be provided to cover meals from lunch on March 23rd through to breakfast on March 30th.

Selection of Representatives: The Go associations or organizing bodies of the countries participating in the tournament are requested to complete the selection of their national representatives by the 20th November, 1979, and to inform the Tournament Office of the relevant details such as name, address, etc. by the 30th November.

NOTE: All representatives must be nationals of the country they represent.

Alterations: Changes in competitors or guest officials will be permitted up to the 20th December, but after that date no alterations will be recognised.

Registration: Players and guest officials must register at the designated Registration Room as soon as possible after their arrival in Japan. All necessary information regarding the championship will be made available to participants at the Registration Room.

Official Hotel: The Hotel New Otani, a first class hotel which is quite close to the Nihon Ki-in, will be the official hotel. Its address is:

Hotel New Otani
4, Kioi-cho, Chiyoda-ku, Tokyo 102
Tel. (03) 265-1111

Rulebook: In the eventuality that there are any changes in the rulebook, "The First World Amateur Championship Rules" which has already been forwarded to you, a revised version of the book will be sent to all participants by mid-February, 1980.

Pairings: The pairings will be decided by a combination of seeding and drawing lots. The representatives from the countries which gained the top eight places in the 1st tournament will be seeded, while the remaining participants will draw lots in order according to geographical area, by alphabetical order within those areas.

Friendship matches: International friendship matches between Japanese teams and competitors eliminated from the tournament and the guest officials will be included in the tournament.

Game reviews: Professional Go players will review the games of players eliminated from the tournament.

The contact address is:

The Tournament Office
World Amateur Go Championship
c/o The Nihon Ki-in
7-2, Gobancho
Chiyoda-ku, Tokyo 102
Tel. (03) 262-6161

A REQUEST FROM THE RATING COORDINATOR

Dave Relson asks that clubs reporting non-tournament results to him use the form below. It has the advantage of using only one line for a series of games between 2 players at the same handicap and color. For example, if Smith plays Jones 5 games with Jones taking a 2-stone handicap, and if Jones wins 2 games and Smith wins 3, the results would be recorded as below. An entire evening of club play can be recorded on one lined sheet.

White	Black	Hndcp	# of Wins		
			W	B	J
Smith	Jones	2	3	2	-

PROC VISIT REPORT

(The letter below was sent to all members of the committee involved in organizing a visit by a team from the People's Republic of China. - Ed.)

Dear Member of the PROC Planning Group:

We have made substantial progress in building a national network in support of a planned visit to the United States by a Go delegation from the People's Republic of China. We now have, I feel, a reliable organization to guarantee the success of a national tour by the Chinese. The last letter from me contained a list of all of the key organizers.

I have been in constant contact with the Cultural Section of the Chinese embassy here in Washington. The staff, and particularly the Cultural Officer who is working with us, has been extremely supportive of our activity. In addition to our own direct via letter invitation to the Go Association of the People's Republic of China, the Cultural Section of the embassy has sent two telegrams to Peking urging acceptance of our proposal. It is unusual for the embassy to send more than one.

I am now, however, in receipt of a letter from the Go Association of the People's Republic of China which states regretfully that they had not budgeted for a delegation to the United States this year. They lack the funds to pay for their portion of the visit.

On receipt of the letter I was initially disappointed, as also was the Cultural Officer at the embassy. However, he has assured me that he will be in Washington for some time, and that the American Go Association should not give up. I also realize the budgetary problems of a major trip from China to the United States, and have replied by letter to Peking that we understand the situation. I have proposed that we set the date now further into the future, either this spring or fall, and thus allow them more time for preparation. I am now awaiting an answer to that letter.

In the same letter I also proposed that we play a game via satellite communications, which would only cost $700 for four hours of voice circuit time. I have been in touch with COMSAT to resolve technical problems, and also seeking, if possible, donation of communication time.

Take heart, and do not think that your efforts have been in vain. We are merely reordering our schedule. I should also mention that we have a very talented fundraiser who is presently seeking financial backing for our portion of the proposed visit. The extra time will allow more potential for success in this area.

Sincerely,
John Maier

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KITANI: GO AND I

Reprinted from the Massachusetts Go Journal, Vol I, No. 1
with the kind permission of the publishers. Translated by Bob Myers.

(This article is the first in a series of translations from the late Kitani Minoru's 9-dan book, "Watakushi no Go," or "Go and I." The book is of great practical interest for students of fuseki and joseki, bringing together as it does both the earlier and later ideas of Kitani. It also has import from a historical point of view.)

Foreword

When I reminisce about my youth, the thoughts that come to mind are those of the New Fuseki period; the two ten-game matches that I played with Go Seigen around that time; and the retirement game I played with Honinbo Shusai Meijin.*

Following the first volume of this series, "Games I Remember," I have decided to devote this second volume to the New Fuseki period and the joseki that have come to be known as the Kitani Style. The fall of 1933 was for me a time when the ideas of the New Fuseki were bearing great fruit; and, to exaggerate slightly, I feel we were successful in advancing the development of Go by throwing a stone or two into the tranquil pond of the Go world of that time.

Let me make clear that I could not even be writing about the process of development of the New Fuseki were it not for the pre-eminent Go sense and superior talent of Go Seigen. In some of Go's later books, he made claims like "Kitani was the one who invented the New Fuseki; I was only along for the ride," but I beg to disagree. For one thing, long before I began advocating New Fuseki ideas, he was already laying the groundwork for it with his various experiments. Furthermore, considering my discussions with him on the eve of the birth of the New Fuseki, I believe that it was possible only because of our collective efforts. As one of the originators of the New Fuseki, I could imagine no greater pleasure than there being some area of Go where our attempts were of any small benefit to the development of Go technique.

I am not going to say much about the "Kitani Josekis." It goes without saying that they reflect my convictions; but I am in no position to say whether or not they are truly universal. However, there would be nothing more satisfying for me than to have this book read in the spirit of being the story of one professional's journey and of his attitude toward the search for truth.

Attempt at a New Fuseki

When I am asked who first played the New Fuseki, I answer without hesitation that it was Go Seigen and myself. If you limit New Fuseki to san-ren-sei (three star points in a row), then I guess you could say that I was the very first to play it, but I cannot imagine the theoretical background not being developed in conjunction with Go Seigen. It is probably best to say that there are two originators of the New Fuseki.

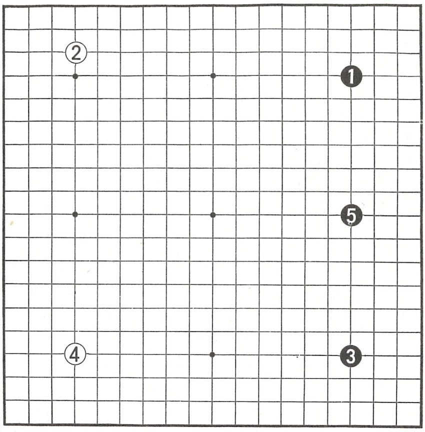
I am not going to go into detail here about my reasons for starting to play the New Fuseki, as the story has been told many times, and I myself wrote them in the first volume of this series. In the summer of 1933 I traveled to Shinshu Jigokudani Hot Springs with a writer named Kohara Masahiro to be interviewed for a book to be called "Fuseki and Joseki Unified." There I happened to meet Go Seigen, and while discussing the content of the book, we exchanged ideas and realized that we had many beliefs in common. That was the genesis of the New Fuseki. Talking with a friend is a rather ordinary experience, and so I don't remember our discussions clearly, but the topics we talked about at that time were principally limited to the height of stones, their effectiveness, and related local problems; we didn't raise the question, for instance, of whether we should play san-ren-sei or the 5-5 point. There was a newspaper game we were still in the process of playing, and our approach to influence had not yet matured to the point where we could clearly arrange our conceptions about the New Fuseki.

---

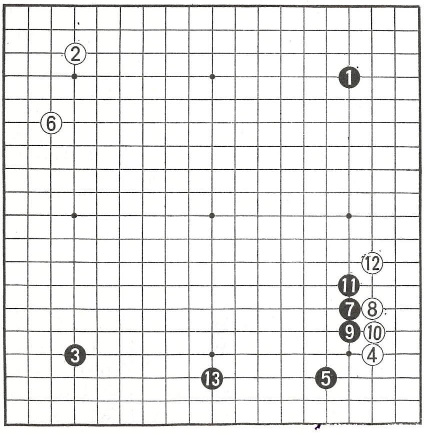
*Chronicled in Kawabata's The Master of Go - Ed.

Game Record 1. The first san-ren-sei that I experimented with on my return was in a game with Maeda. It is a game that I remember vividly. The observer for the Tokyo Nichi-nichi Newspaper called it "truly an unprecedented experiment," and indeed my san-ren-sei must have seemed extraordinary, an approach never before seen in the annals of Go. My aim was to build a large moyo, or territorial framework, on the foundation of the influence gained by playing 1, 3, and 5 successively on star points along the right side.

Following this game, I also played a san-ren-sei against Konoda Chiyotaro 6-dan; that game appeared in the Hochi Newspaper. Both games, however, ended in Black's defeat.



Game Record 1
Sept., 1933
Newspaper sponsored game
Black: Kitani Minoru, 5-dan
White: Maeda Nobuaki, 5-dan
White wins by resignation

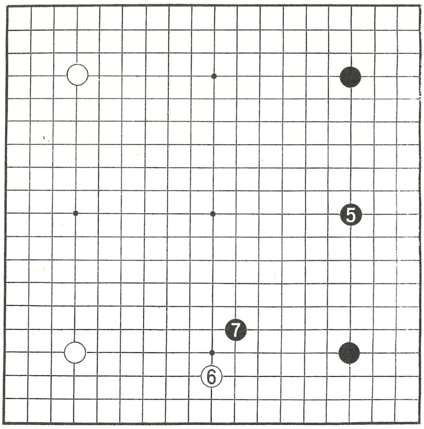


Example 1
March, 1933 - 3rd round Oteai
Black: Go Seigen, 5-dan
White: Miyasaka, 6-dan
Black wins by 5 points

Example 1. Go Seigen, being the star point expert, had already played the tasuki (diagonal) star point and ni-ren-sei (two star points on one side) openings in the spring of the year. I feel that my san-ren-sei could be called one step further down the road of his influence-oriented, star point playing style.

Game Record 2 (next page). When Maeda extended to below the star point on the lower side at 6, I responded by pressing with the fifth line knight's move at 7. This move, backed up by the three star points, is a strong, direct attempt to form a moyo (territorial framework), and was typical of play in the early New Fuseki period.

Diagram 1. If White responds with the diagonal move at 1, the idea is to play the knight's move at 2, emphasizing the expansion of the right side.

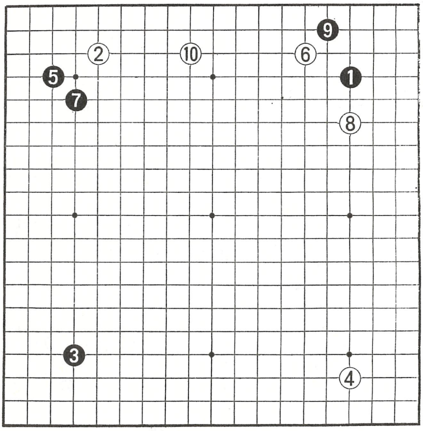


Game Record 2

Diagram 2. If White extends to 1, Black builds influence starting with the shoulder hit of 2.

Diagram 3. If White plays elsewhere, the idea is to apply pressure with 1 and 3, building thickness toward the center.

Besides not being interested in territory, the New Fuseki placed primary stress on developing central influence. Black 7 is a move that expresses this orientation clearly.



Example 2

White: Iwamoto Kaoru, 6-dan

Black: Go Seigen, 5-dan

Played in the second spring Oteai (rating tournament) in March, 1933.

Example 2. Here is an example of the tasuki hoshi (diagonal star points) with which Go had extraordinary luck.

Example 3. This is a ni-ren-sei which Go Seigen played against me. The

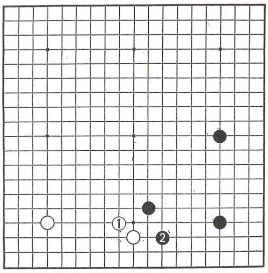


Diagram 1

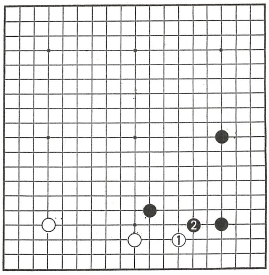


Diagram 2

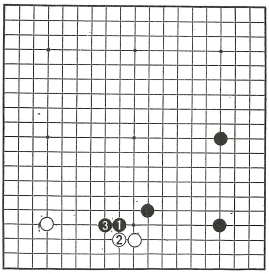
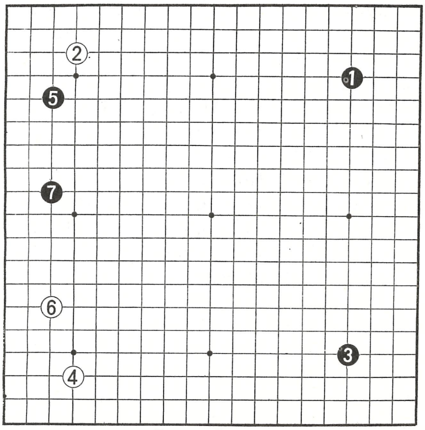


Diagram 3



Example 3

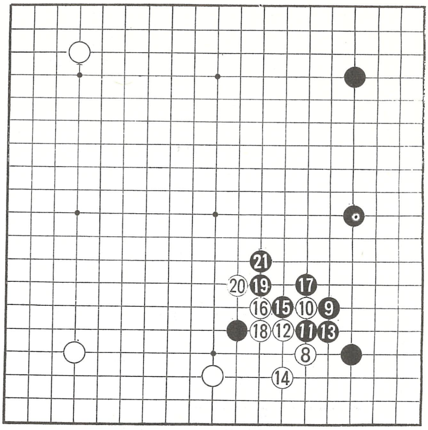
Black: Kitani Minoru, 5-dan

White: Go Seigen, 5-dan

Played Aug., 1932.

White wins by resignation

thorough going emphasis on thickness of the New Fuseki had not yet matured, but I cannot deny that games such as this one were what got me started thinking about the san-ren-sei. I myself attempted a ni-ren-sei fuseki in the Spring, 1932 Oteai.



Game Record 3

Game Record 3. The high approach move at 8 was an interesting one which struck at the heart of my plan. I thought long and hard over my response at 9.

Diagram 4. Jumping to 1 would be normal, but when White defends at 2, the purpose in life for the Black stone on the 5th line gets somewhat fuzzy.

Diagram 5. The diagonal move at 1 here is also conceivable, but a White move like invading at the 3-3 point (A) would make B1 seem too easy going. It is impossible to say what would happen if Black jumped all the way down to B, because White has the waist-cut at 1.

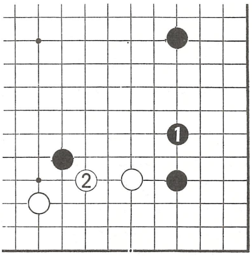


Diagram 4

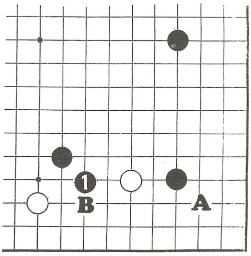
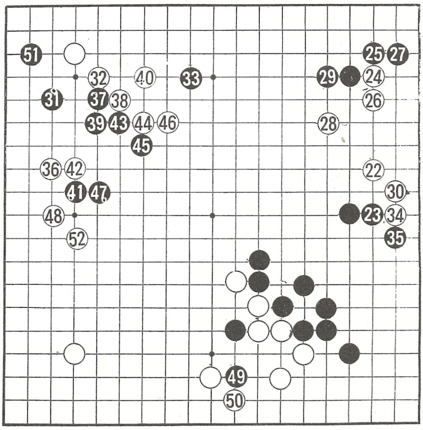


Diagram 5

Inviting White 10 and then cutting with 11 through 15 was the natural sequence. But the result up to 21 leaves the Black stone on the fifth line isolated, and White has the initiative besides. Black's shape is certainly nice and thick, but it's still hard to be proud of the result. At points in this first san-ren-sei game it was clear that the study of things such as the effective utilization of fifth line stones was not completed. I can recall a picture of myself, in those early days of the New Fuseki, trying to combine playing tournament games with groping wildly in the dark.



Game Record 4

Game Record 4. With 22, White issues a spirited challenge to Black's territorial framework.

Black 23 was lukewarm.

Diagram 6 (next page). The only way to bring Black's thickness alive is to attack White severely with the diagonal attachment at 1 and the follow-up at 3. The extension to 3 (in place of 1) is also possible. Today, this is probably the stance that most players would assume.

Because I answered at 23, White was able to play 24 to 30 and form a nice base for himself; 23 is clearly a failure.

Horse trading was going on in the upper left as well; but my slide at 51, after the exchange of 49 and 50, is doubtful. It permits White the diagonal move at 52. Instead of 51, I should have covered with 52, emphasizing the aji, or potential, of the cut at A. Getting to play at 52 makes the game too good for White.

This game ended in a White victory. As I mentioned before, the next game where I attempted san-ren-sei also ended in defeat, so the value of the new idea was not yet established in the popular mind. It had not even reached the point of being the object of much discussion.

A new style of Go can only take the spotlight when it starts to win games.

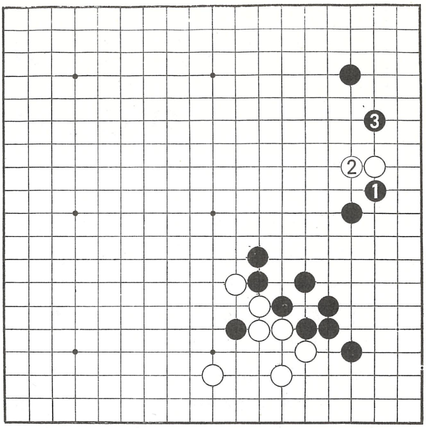


Diagram 6

GO World

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PROFESSIONAL VISIT

Chizu Kobayashi, 5-dan, former women's Honinbo, visited the Mass. Go Association October 22 and 23. Everyone who participated agreed that she provided us with two very entertaining and worthwhile evenings. Monday night about 25 members attended the simultaneous games at the club. Chizu played 10 games and won seven; our winners were Dave Sparr, 2-dan (5 stones), Steve Parrott, 2-dan (6 stones), and Dave Mallon, 1-dan (7 stones). On Tuesday, 14 of us accompanied our guest at dinner at the Kabuki restaurant, following which she played a demonstration game (2 stones) with Kim Suk Jo in very comfortable quarters at MIT's Sloan School. She won the game by resignation, and she and Mr. Kim then gave the audience of nearly 30 a detailed analysis of the game.

Many club members cooperated to ensure the great success of these events. Particular thanks are due to: Bob and Mieko Myers, Jerzy Novosielski, Sangit Chatterjee, and Elizabeth Bohlen.

18

The Preparation & Use of Thickness in a Two Stone Game

Black begins by playing the takamoku at 2. Now when White plays in at 3, Black is invited to expand the outside influence by continuing with the keima at 4. The sequence through 8 is a very common way of developing, and is actually a very effective way of making use of the two stone handicap. By building this wall, Black is prepared for whatever subtle pressures White might later bring to bear in this area.

White proceeds by playing the kakari at 1 in diagram 1, against which Black 2 is usual. If White plays at 3, and the sequence continues through the boshi (capping play) at 8, Black can occupy the preferred point at 10. Already Black has established a superior position, and can feel quite content with the overall situation.

White might also be expected to play 5 as a kakari at 1 in diagram 2, at which point Black can retaliate by playing a kakari at 2. If White plays the usual sequence through 7, Black shifts to the offensive by attacking at A.

Were White to protect against a Black kakari by simply playing at 2, a play at B assumes a good de-

Basic Diagram

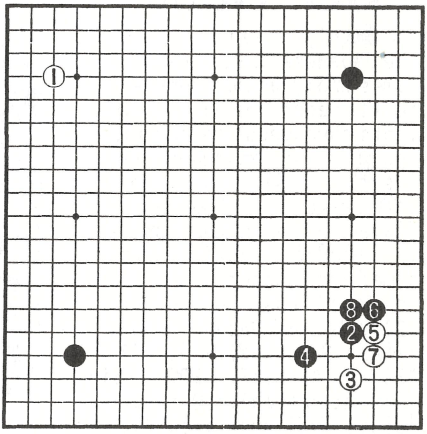


diagram 1

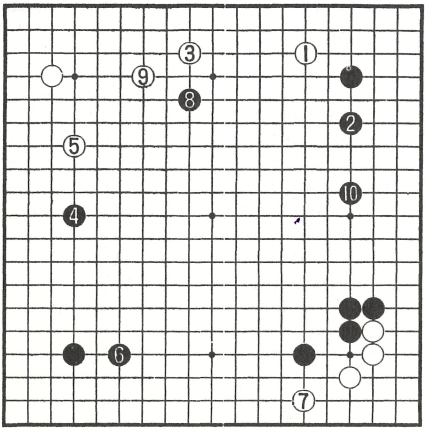
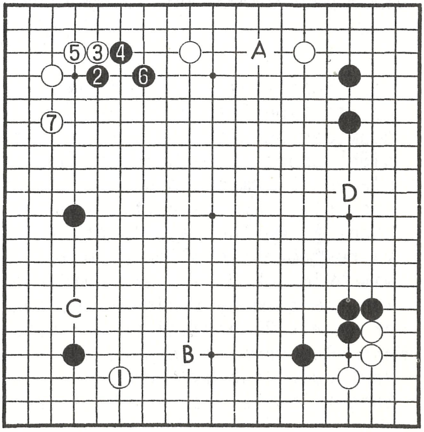


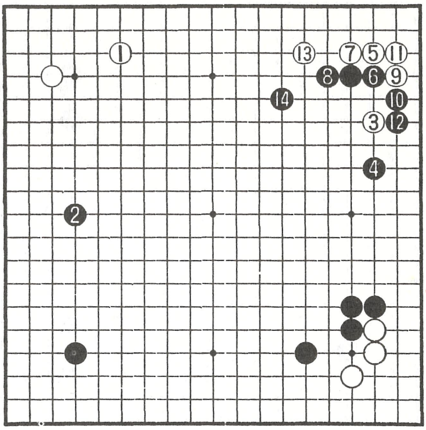
diagram 2



fensive posture for Black. Occupying the point at C is also acceptable; there's little if any difference between the two. Later, if White plays the wari-uchi at B, the best response for Black is at D. There is no disadvantage for Black with either variation.

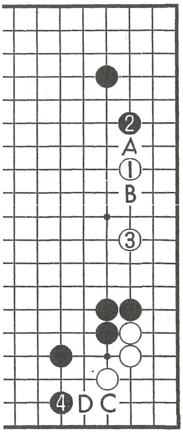
If White plays at 1 in diagram 3, a Black play on the left side hoshi point works quite well in concert with the thickness in the lower left corner. Now, if White plays a kakari at 3, the hasami at 4 combines both a territorial play and an attack. Were White to follow this up with a play at san-san, Black's objective will be to develop on a large scale with the method through 14.

diagram 3



Against a White play at 1 in diagram 4, Black should assume an offensive posture by forcing White to develop toward the thickness on the lower board; sandwiching it in effect. White would, without fail, play the two-space extension at 3, whereupon a Black play at 4 occupies the point at which White would have aimed.

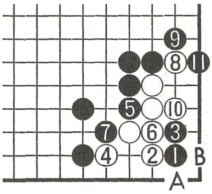
diagram 4



Also, if White 1 is played at A, a hasami attack from the opposite side at B is right on. With either the exchange of 1 and 2, or A and B, it is important to note the interval of space allowed.

But what about the uncomfortable situation for White in the lower right corner? Well, White can play at either C or D. By neglecting to play here altogether Black has available the sequence beginning with 1 in diagram 5. Following this procedure, if White plays at A, a Black play at B results in kō. The truth of the matter is that White can live by simply playing the sequence beginning with 1 in diagram 6, or by substituting the play at 8 in diagram 5 for 1 in diagram 7. All the same, besides being a potentially ambiguous situation, it is definitely painful for White to have been shut into the corner in this way.

diagram 5



diag. 6 7 at 5

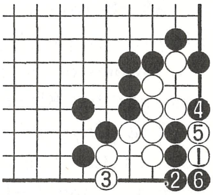


diagram 7

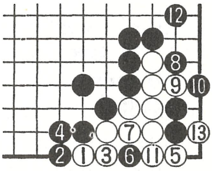
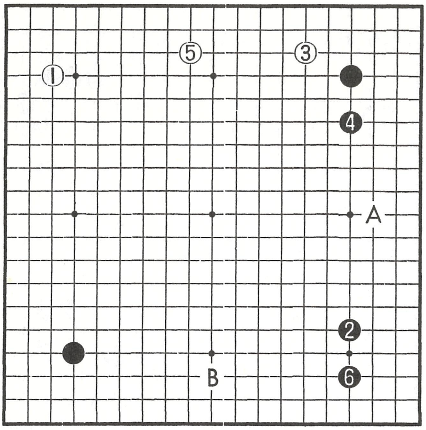


Diagram 8 illustrates an alternative style of development. After White's kakari at 3, and the hiraki (extension) at 5, the corner enclosure at 6 is perfectly satisfactory for Black. Now the points at A and B are miai.

diagram 8



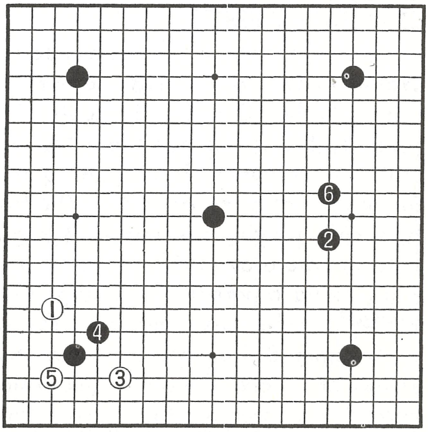
Both the preceding article and that which follows are taken from the February '77 issue of the Igo Shinchō as compiled and edited by Miyamoto Naoki, 9-dan.

The Suzuki Method for Five Stone Games

Black responds quite unexpectedly to White's kakari at 1 in the basic diagram by playing a shimari on the fifth line at 2. Then when White plays the hasami at 3, and the exchange of 4 and 5 is made, a powerful strategy emerges for Black with the play at 6.

The plays at 2 and 6 were originally concieved of by Suzuki Etsuō, 8-dan, of the Kansai Ki-in, but it was Suzuki's disciple, Nishimura Shue, who is known to have applied them in actual play; thus this strategy is also referred to as the "Nishimura Method."

Basic Diagram



Having played at 2 and 6, there are the same number of spaces in the direction of the handicap stones at ◉ (in diagram 1). This is particularly relevant in relation to the center. Now, should White continue by playing at 1, a Black play at 2 is perfectly consistant with Suzuki's method.

This strategy works equally well should White play in at 1 in diagram 2. It is sufficient for Black to quietly play at 2, and if White then plays at 3, Black can produce an even more overwhelming position with the sequence through 8. Because of the inherent symmetry it doesn't matter whether White plays in at 1 or 2; Black is able to force the continuation in either direction.

A White play at 1 in diagram 3 evokes Black 2. Now, if White plays the two-space extension to 3, the kosumi of Black 4 proves no less distressing for White. If White 3 is played at A, Black's effort at splitting these stones asunder with a play at B is again painful for White.

With White simply playing the kakari at 1 in diagram 4, and after Black's kosumi-tsuke at 2, it is likely that the result will be the same as in diagram 2.

Consequently, with the two stones on the fifth line at 2 and 6 in the basic diagram, it is difficult for White to forcibly launch an effective attack by immediately playing in this area. It seems impossible to refute the splender of this strategy for Black.

White adroitly abandons the idea of playing directly into Black's influence and plays instead at san-san in diagram 5. Black's blockade at 2, in accordance with our concept of spaciousness, is followed by

diagram 1

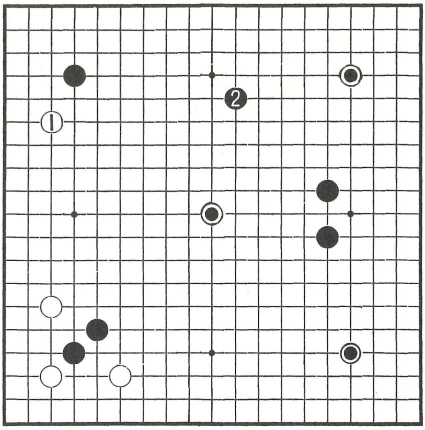


diagram 2

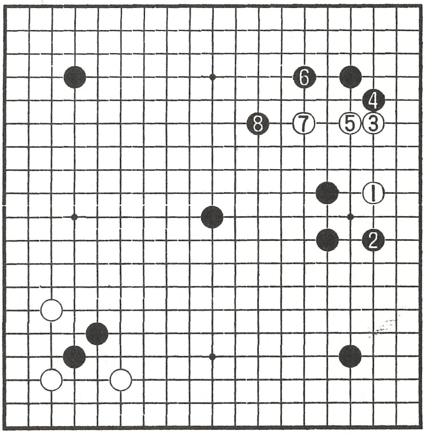


diagram 3

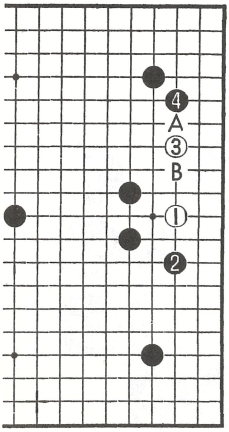
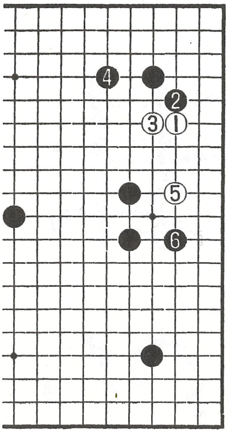
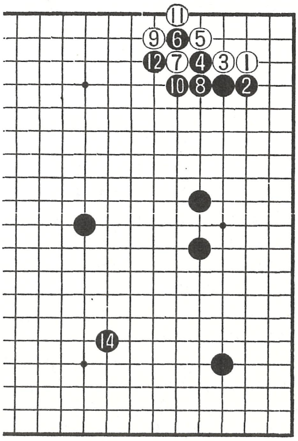


diagram 4



diag. 5 13 fills at 6



the preferred line with the nidan-bane (two-stage hane) at 4 and 6. White's cut at 7 is quite natural, but with the sequence through Black 12, and with White filling at 13, Black comes out the better for it by being first to occupy the best possible point on the lower board at 14.

It is essential when considering the situation on the upper board to make sure you come away holding the initiative. By stretching to 7 rather than playing at 6, Black has consequently given up the initiative, and thus allows White to grab the oba (big point).

diagram 6

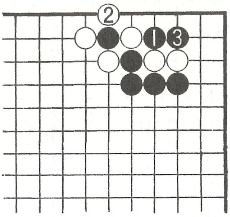


diagram 7

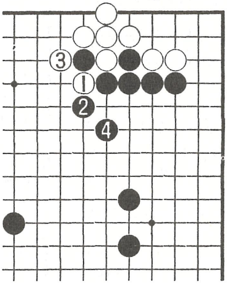
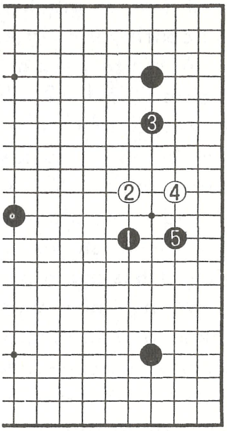


diagram 8



Black is again giving up the initiative if, for the sake of capturing two stones in the corner, the play at 10 is substituted for 1 in diagram 6.

With the ultimate strategical emphasis being on the center, the most important thing is to be prepared to defend it, and not to be concerned with developments on the upper board. Thus, after White cuts at 1 in diagram 7, Black has achieved an enormous thickness in the center by simply playing the sequence through 4.

Being averse to Black's strategy beginning with 1 in diagram 8, White might opt for a play at 2. None the less, with Black making the one-space corner enclosure at 3, White is still in somewhat of a painful predicament.

Certainly Suzuki's method for the treatment of a five-stone game is worth remembering.

* * *

Official AGA t-shirts are available from the Ann Arbor Go Club.
The "geta" t-shirt with the charming design pictured here is back by popular demand. It speaks for itself; even non-Go players find it "cute". Colors: Blue (Ex. Lg., Med., Sm.), Green (Med., Sm.), Brown (Med., Sm.). Price :$5.25 including shipping.
Both can be ordered by mail from the Ann Arbor Go Club/ c/o Dave Relson/ 514 Keech, Ann Arbor, Mich. 48103. Please specify alternate choices and make checks payable to David Relson.

INSTANT GO NEWS - by Bruce Wilcox

The two series, "Instant Go" and "Computer Go", merge in this issue with the presentation of the Go program that led to the IG series. IG will return to normal next issue.

I have moved to the Boston area (Lexington). My home address will remain in flux, so if you want to write me use my business one:

Intermetrics, 701 Concord Ave., Cambridge, MA 02138.

COMPUTER GO - The Reitman-Wilcox Program CG-4.0

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This is the final chapter in the Computer Go series (until new work is done) and is co-authored with Walter Reitman. Since the Reitman-Wilcox program is the best to date, a significant amount of space is devoted to it. We will answer questions often asked about the program, describing how it works and what it can do. Terminology from the "Instant Go" series is used throughout. Consult that series for more details.

This article is broken into four sections. The first section is a general overview of the program. The next two sections give more specific details for those interested in programming Go. The second section describes the control structure of the program's tactician. The third section describes the perceptions used by the program. The fourth section is an up-to-date bibliography on computer Go.

CG-4.1

AN OVERVIEW OF THE PROGRAM

WHY ARE WE WRITING A GO PROGRAM? Our Go program is a publicly-supported (NSF grant) long-term Artificial Intelligence (AI) research project involving the game of Go. Why is this funded? Why is our research considered important? To answer this, you must first understand the objectives behind AI research in general. AI is concerned with creating "intelligent" machines to aid us in controlling our world. AI covers many things, including computer speech, computer vision, computer locomotion, etc. Our particular interest is in the human's reasoning abilities: his ability to coordinate perception, knowledge and activity. Duplicating this is essential for many "useful" programs such as robots, computer doctors, etc.

You can't just sit down and write a doctor program, however. Current programming techniques are inadequate, so better ones have to be developed. Go, a well-specified and easily evaluated smaller task, requires the same basic abilities and is thus a good first step toward writing the more complex and useful programs.

A BRIEF HISTORY. Walter Reitman is a professor of computers and psychology at the University of Michigan, and has directed various research endeavors in AI. He is also a Go player, and has long had an interest in designing an intelligent Go program. Interest alone wasn't enough to produce a Go program, but in 1972 the set of resources needed became available. Hal Rosenblit, a Computer Science graduate student, was working on a Tsume-Go (life and death) analyzer for his thesis. Walter had an NSF grant in intelligent information retrieval, and he had Bob Nado and Bruce Wilcox as programmers. Hal brought Jim Kerwin* to Walter's attention and Jim agreed to provide skilled information. Given desire, expert information, funds, and programmers, the Go project was born.

We began work on the program in different ways. Bruce learned Go,

*A strong player from Minnesota.

designed pattern recognition machinery, and wrote a fast LISP interpreter for later programming use. Walter and Jim met to determine how Jim played Go and what information he used. They collected video-taped protocols and post-game analyses. Jim and Bob met to analyze tsume-go (life and death) and how it might be programmed. Jim later went to Japan to become a professional player, and Bob switched from Go into robotics. Walter and Bruce put the program together.

The program's first game was played on March 8, 1975. Bruce gave the program a 9-stone handicap and opened with the classic kogeima kakari. The program, responding from a small joseki data base, reacted with an ogeima defense. Bruce then invaded at san-san in another corner. The program, having exhausted its joseki knowledge, resigned. This was, of course, merely a test of the joseki system. Real games began late in 1975. Since then, it has been a matter of adding new structures, refinements, etc.

The next phase is to investigate planning and coordination, the "intelligent" control structure needed for good Go. Bruce is, however, leaving for other work (remaining attached as a consultant), and graduate student Paul Lehner is taking his place.

WHAT IS NEEDED FOR A GO PROGRAM? Perception, knowledge, and coordination are the three essential ingredients for a Go program. The first step is to "duplicate" human Go perception. Good players segment the board into many structures for different purposes. In addition to stones and liberties, humans see patterns (such as joseki), enclosures of various kinds, influence, etc. Determining and representing the perceptions needed is the first step.

The next step is to identify and store specific Go knowledge about processes and evaluation. Process information includes how to kill a group, how to make territory, how to play contact fights, etc. Evaluation information covers judging stability for groups and other structures, estimating relative values, recognizing a good result, etc. Protocols and post-game analyses are useful in identifying the needed knowledge.

The final step is to coordinate all of the perception and knowledge to choose the best move. Strong human players have the ability to plan and reason, follow through on intentions, and cope with unexpected changes. These abilities handle move optimization and multi-prupose objectives in an efficient manner.

WHY DID WE PROGRAM IN LISP? Machine-level programming languages provide great speed, but in a research endeavor such as ours, ease of programming and debugging is more important. This dictates choosing some higher-level language. LISP particularly facilitates debugging and is designed specifically for non-numeric symbol manipulation. It is thus a common choice for AI research.

HOW DOES OUR PROGRAM WORK? Our program "summarizes information up and filters decisions down." Each perceptual representation (data structure) not only includes simple properties, but also has complex stability summaries. A string, for example, has properties like stone count and liberties, and also "knows" tactically whether or not it can be captured. Basic perceptions and their properties are retained from turn to turn, being modified only when a new move affects them. Different combinations of lower-level perceptions are aggregated into higher-level ones, such as groups. These higher-level aggregates query the summaries maintained by lower-level ones, and incorporate relevant information into their own status summaries. This is "summarizing up." Since only those structures and properties actually affected by a new move need updating, considerable time is saved.

During "filtering down," the program used the highest level summaries to decide what to focus upon. If a group is dying, the tactical danger to a string component of it may or may not be important, so primary focus should be on the group as a whole. Anything not in focus can be ignored for the time being. As new moves significantly affect some structure, status summaries at various levels will change and the focus may shift.

The program only considers moves to develop those structures (groups, territories, etc.) "in focus", and then only considers moves that will perform some specific task. This is in contrast to the "look at all moves and see what they do" mentality used in previous programs. Most structures on the board are "stable" and need not be focussed upon, so the amount of work saved ignoring them is enormous. Each structure has expert sub-programs to determine what moves should, and will affect it. The savings resulting from selective updating and focus selection can be devoted to in-depth strategic and tactical analysis of the problems in focus and optimization of proposed moves.

HOW DOES OUR PROGRAM COMPARE WITH OTHERS? There are two programs to compare with, Zobrist's and Ryder's. These were the first successful attempts to write a Go program and were completed around 1970. Zobrist believed patterns were the main ingredient needed for good Go and put together a program based on them. Ryder, a much stronger Go player, developed a more complete machine-implementable theory of Go. While both programs broke significant new ground, they were developed only briefly, so there was no time to incorporate much Go knowledge. This lack of knowledge, combined with the use of a simple method for choosing moves (control structure), meant that neither program played particularly well. While both programs could be improved by adding new knowledge, eventually the control structure would raise three problems. Before examining these problems, however, let us quickly review how the programs worked. (See AGJ 13:4-6 and AGJ 14:1 for a more complete discussion).

Their programs looked at every board point for nearby features. A feature was the occurrence of specific structures or properties. Sample features might be: being the last dame of a string, being within enemy influence, etc. Features had move proposals and values associated with them, and would add the move's value into a tally for that move. All features throughout the board would contribute values to tallies, and the move with the highest final value was chosen.

This kind of control structure is easy to program, but has basic weaknesses. The first is inefficiency. Checking for all patterns everywhere is mostly wasted effort when an urgent situation exists (as it usually does). Ryder cut costs by doing two passes over the board. Simple, cheap tests were done during the first pass, while more expensive tests were performed only on the top-valued moves from the first pass. His two-pass method was a crude approximation to using a basic understanding of problems and priorities to dramatically cut costs, as our program does.

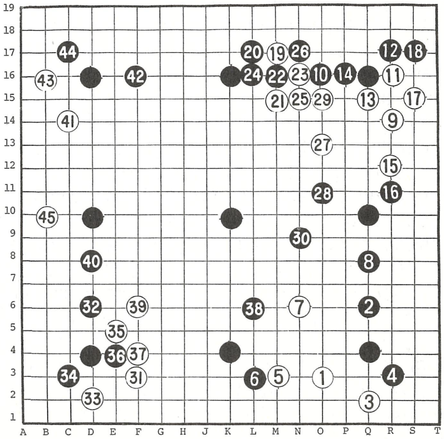
The second weakness of the simple control structure is an inability to handle multi-level patterns. "Push your enemy's weak stones toward your strong ones" is a proverb that describes a situation and what to do. To recognize an instance of the proverb on the board, however, you must first combine various low-level patterns to recognize weak and strong stones, then use the aggregate information to see this higher pattern. To handle multi-level patterns, you need a "summarize up and filter down" approach of some kind. Our program can do this.

A third weakness is the control structure's extreme sensitivity to the values assigned to the features. Assigning numeric values to things in Go (or anything else) is hard enough. Assigning values which will change appropriately with the changing board environment is even harder. Because the simple control structure chooses moves strictly because they have the highest value, it is as likely as not that successive moves will bear little relationship to each other or will be downright inconsistent. The program merely flows with the pressures upon it. In fact, the program may choose a move which, while reacting to many different pressures simultaneously, reacts in such a way that none is really dealt with. If, on the other hand, a program plays moves with the intent of accomplishing a goal, then specific values become less important. The program can remember why it played a move and can continue working on a goal until it succeeds or fails. Thus the values are only important in choosing what goal to attempt, and, while working on that goal for several turns, in choosing among moves that will all accomplish it. Accomplishing SOMETHING of value is almost assured.

WHAT HAVE WE ACCOMPLISHED SO FAR? The program is somewhere between 15 and 20 kyu, and uses only a few seconds per move. This is much better than previous programs, but not as good as we'd like. There is, however, another measure of performance that should be examined. Our objective is to model human play. To the extent that the program's play is indistinguishable from a human's, we will have been successful. To judge our success in this area, you need to see the program in action. The opening below comes from a game played against our program a year ago, and will also help you get a better feel for exactly how the program "thinks". (For a complete game, see Mann in the bibliography.) The game commentary will reveal some of the perception and knowledge the program has. The current game control structure is different from the one used for the game below, and is still not what we want, so we will not discuss either. The tactical control structure is discussed in detail in the second section. More detailed information on perception is in the third section.

In the usual commentary on computer games (like Mann's), what the human commentator perceives as happening may be nothing like what the program has in mind. Since our program has intentions, we can know why the program plays each move. The reason will not be "this move is highest in value," but "this move is primarily in service of x objective, and takes into account y other factors." When the human programmer disagrees with the evaluations and decisions made by the program, he knows what to work on to improve things. Furthermore, the programmer can feel confident that changes will not have drastically unpredictable side effects. The process of improving the program will be much like that of tutoring a weaker human player. You find out why he made a move, show him what he failed to take into account, and expect him to do better next time.

Game Record 1 (1-45)



Game Record 1 shows the first 45 moves from a nine-stone game against a 10 kyu opponent. The program is Black. White's first two moves and the program's responses are joseki. The program has structures called lenses for recognizing stone configurations and expected followups. B2 and B4 come from a joseki "lens", one of which is assigned to monitor each of the four corners, certain extensions, and side handicap stones. Only a handful of joseki are known to the program because we are mainly concerned with developing the program's ability to analyze situations and generate appropriate responses on its own.

The joseki ends with W5, which undercuts a Black potential territory (moyo) to the left of the K-4 handicap stone. B6 secures the undercut edge linkage boundary, being one of several moves available from an approach lens monitoring the configuration of K-4 and W5. The lens provides moves to close up the gap between the two stones. Those moves are then further required to close the gap to the edge, resulting in four possibilities: K-3, K-2, L-3, and L-2. B6 (1-3) is an aggressive choice from these.

B8 is a defensive reaction to W7. Before W7, the Black group in the lower right corner was considered stable because it bounded a stable Black moyo between B2 and Q-10. An edge moyo is considered stable if neither of its side boundaries is (1a) undercut or (1b) defined by a single stone closely flanked on the opposite side by an enemy stone, or if (2) there is no nearby enemy stone in the center with access to he open boundary of the moyo. W7 moves close to the sector line defining the moyo boundary. This makes the moyo unstable, so the group becomes unstable. To protect the group, the program chooses to restabilize the moyo by securing the sector line. This is a good example of summarizing up and filtering down.

W9 and B10 start a joseki again. W11 branches off into a variation not known to the program and creates three different urgent options. W11 is played on a linkage to the right edge, which bounds significant Black territory, so "reclaiming" the territory is one idea. W11 also initiates a contact fight, so reacting to get contact stability is another possibility. Finally, W11 creates a local shape vital point at Q15. Re-establishing the territory takes priority, and using a combination of lens and edge data, the program considers two moves, R-17 and Q-17. The program would prefer to play R-17 because it is more aggressive, but it also has the tactical risk of a cut. Looking ahead, the program decides that White cannot succeed with the cut and plays the more aggressive move.

W13 triggers new problems. The program considers B12 in danger of being cut off and killed. That may not be true, but the fighting gets complex. The program's first tactical search stops short of a complete investigation of the string's capture due to the number of possibilities encountered. The tactician's best guess is that B12 is in danger, and the program decides to protect. The obvious connecting move at P-17 is the tactician's suggestion, but, since it is inside of the program's enclosed territory, it is not ideal. After additional optimization (requiring more tactical searching), B14 is selected as the best defense. It protects two linkages, grabs the most territory, provides contact fight followups, and, of course, saves B12.

W15 undercuts program territory, and the program blocks with B16. W17 creates a shape vital point at B18. Occupation of B18 by White would completely stabilize his group and shift the direction of wall-building. The idea behind Black's occupation of that vital point is to preempt and defuse "shift" situations whenever it is locally advantageous to do so.

W19 invades the upper moyo before Black can secure it, and B20 is the program's first significant mistake (a bug). W21 is also an error, however, and through B26 Black takes advantage of it. B20 formed a linkage to B10 which W21 failed to properly sever. The program, having read out that it can connect B20 to B10, begins to do so. After W25, B26 completes the process of connecting Black's groups, killing White's invasion.

W27 and W29 have no direct effect on Black, so the program should take sente. Unfortunately, it believes its entire right-side group is in danger, and protects it with B28 and B30. Why? W3 undercuts the B4/bottom-edge boundary. Ordinarily, if a territory is undercut it can lose points very quickly. Here, however, not much territory would really be lost due to the presence of the corner. Since the group is within White's sector line (W7/W27) and has insecure eyespace, the program ran to cross the sector line.

W31-B34 are a joseki again. With W35, White has created an easy-to-destroy linkage. Making the opponent's move meaningless is a good idea, so the program begins to cut off W35 from White's main group. After W37, however, the program desists because the cut would not be directly supported by other Black stones. This reveals a serious limitation of the current version of the program, a lack of extended strategic analysis. A strong player would decide if the cut would be useful before making any preparatory moves. Since the program decided against completing the cut, it shouldn't have begun it.

After W37, the program determines that there is no danger that B32 and the D-4 stone will be cut apart. The K-4 group is weak and within an enemy sector line, however, so the program runs it out. W39 defends White's cut point and destabilizes the left-side Black moyo, just as W7 did on the right. B40 is therefore expected. W41-B44 comprise a joseki fragment. W45 departs the joseki and will launch a protracted mid-game fight.

Let us examine the result so far. The program has made some bad moves, but so has White. All of Black's groups are secure, he has good central influence, he has 65-70 points of territory, he also has additional territorial prospects. In contrast, White has insecure groups, some central influence, 15 points of territory, and no immediate prospects. Since this is a high-handicap game we can expect White to be behind at this stage, but his rate of progress so far is distinctly unsatisfactory. He does eventually win this game by a small margin, which prompts the next question.

WHAT ARE THE STRENGTHS AND WEAKNESSES OF THE PROGRAM? Part of the program's strength reflects the power of the "Instant Go" heuristics. These heuristics consistently provide good moves, even for someone who doesn't understand the underlying interactions involved. Moves from an IG heuristic have "built-in" multi'purpose effectiveness. For example, crossing a sector line to make a group stable is a simple defensive concept. It is implicit, however, that crossing the line probably enables you to counterattack. Another characteristic of IG moves is a deliberate tilt toward moves which, while not perfect, will not turn sour later due to mistakes in the complex continuations. In amateur hands, "perfect moves" have a habit of backfiring. Since many amateurs have trouble consistently finding even good moves, the imperfections of IG moves are much less noticable.

The other strengths of the program are its perceptual representations and its tactics. Its perceptions model those of dan-level players, and its tactics reach into the strong kyu range. As a result of the program's perceptions and goal-directed control structure, its play is often indistinguishable from that of a human.

While the program plays much like a human, there are areas where our human modeling breaks down. Chief among these is the program's inconsistency of knowledge. The program is incredibly strong in some areas and ridiculously weak in others. Humans have a greater consistency of ability across all facets of the game. The clearest example occurs in the endgame, where the program plays atrociously. Bill Mann estimates an average loss of one point a move--for over 50 moves! No wonder it loses! This surprises most people, who think the endgame is easy to program via lookahead. While this is true, it means that yose is a less interesting AI problem, so we have spent no time on it.

Tactics, a program strength, is also the second program weakness. While its tactician is good, it isn't used enough. This is partly a conscious decision, and partly a cost problem.

The third failing is an inadequate control structure. This is an area we are only beginning to work on (now that perception and knowledge are adequate). Included in this failing is the inability to play ko (other than recognizing that it is illegal to recapture immediately). Ko is a complex motivational and evaluation problem. Its absence from the program is another way to distinguish the computer from the human.

Finally there are the unavoidable bugs. Until the dust settles, any complex program has them.

The first two weaknesses are trivial, and the bugs will clear over time. It is the control structure problem that is both difficult and interesting. It is also at the heart of "intelligence". Researchers will be making attempts to crack this nut for decades.

THE PROGRAM'S TACTICIAN CG-4.2

GETTING THE ANSWER--EXPERTISE VS. INTELLIGENCE: Obviously, the first job of any tactician is to get the right answer. The tougher the problems it can handle, the better. While correct answers are important, we are interested in "intelligence," so the method of getting those answers is equally important.

What is intelligence? Does the ability of computers to play stronger chess than most humans mean computers are intelligent? To some people mere expertise implies intelligence. However, the computer's method of play is distinctly non-human. It looks ahead millions of moves each turn; humans look at a few hundred moves, if that many! Both human and computer demonstrate expertise by playing a good game of chess. But expertise is not the same as intelligence. To understand the difference, let's look at a tactical problem in Go.

In Diagram 1a, Black is to play. Can Black save his two-stone string (B 's)? Typically this question can only be answered by lookahead, so Diagrams 1b-d show various failing Black sequences that a simple program might explore in seeking an answer. After W6, the program "backs up" 2 moves and tries B7, W8. When those fail it backs up to the beginning and tries a whole new sequence starting with B9. After W14, it will presumably try another line much like B7-W8 and so on. Eventually, it might find the correct sequence and judge that Black can indeed save his stones. If a program plays the correct move during a game, many people will attribute intelligence to it. If, however, they saw the sequences used to find the correct move, they might think the program was pretty stupid.

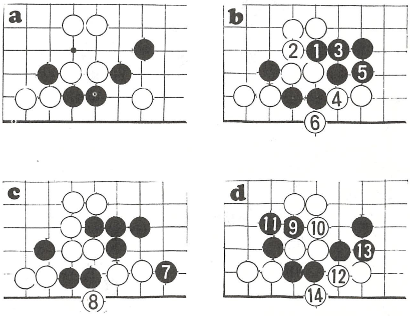

Diagrams 1a-d

Diagram 1 looks silly because new knowledge is being generated, and that knowledge is not being used to guide further searching. Nothing is being learned from the sequences other than success or failure, so mistakes are being repeated over and over again. Intelligent searching uses all available information, including that which can be learned from the search itself. Why did a sequence fail? What can be done about it? To judge our tactician, you must not only see what it can do, but also how it does it.

OUR TACTICIAN: Our tactician consists of about 2000 lines of complex LISP code. It accomplishes the task of lookahead by attempting to simulate reasoning. By keeping track of what it is trying to do within a lookahead problem, the tactician can limit its explorations to reasonable variations. Even so, there can be many reasonable variations in a complex situation. Rather than examining them all, humans usually make their moves based on a partial analysis. Our program doesn't search every variation either. The basic assumption built into our tactician is that if a few, well-selected lines come up with the same answer to a problem, then that answer is very likely correct. This assumption is occasionally wrong, of course, but having to recover from occasional misreadings is a reasonable price to pay for quick searching, and one humans pay frequently.

To write a strong tactician, it is essential to encode large amounts of special, situationally-dependent knowledge, including tesuji. But encoding lots of special tests usually makes it hard to debug a program. First, the accumulation of clutter makes the program incomprehensible. The programmer loses track of how his program works, and cannot readily determine which piece of code is responsible for erroneous moves. Second, although the programmer may be able to find and modify the erroneous code, he cannot be certain of the side effects of his change.

This is not a problem in our program. While our tactician contains a great deal of special expertise, its control structure keeps the knowledge organized, makes debugging easy, and facilitates the addition of new knowledge. Without the coordination provided by the control structure, all of the knowledge would be unusable. It would be like a millipede with its legs moving out of step. Since the control structure is the heart of our tactician, we will discuss its flow in detail. Along the way, some, but by no means all, of the actual expert knowledge used will be mentioned.

Diagram 2

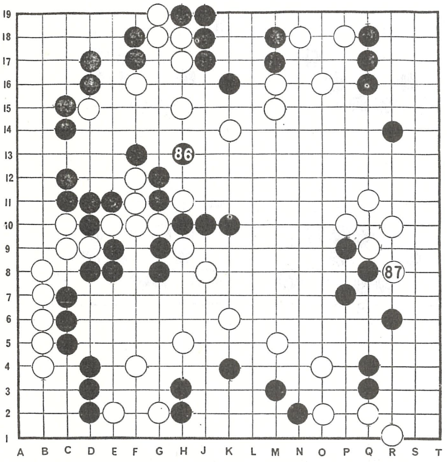
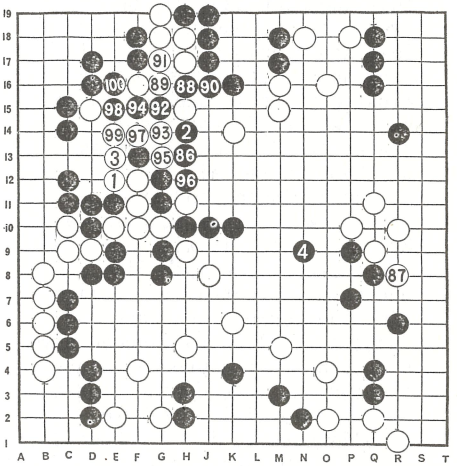


Diagram 3



Before we get deeply involved in the details of how our tactician works, however, let us illustrate the best that can currently be expected of it. Diagram 2 shows a situation encountered by our program while taking 9 stones from a 3 kyu. Black had just played B86 to solidify a dangerous defect, and White, judging B86 to be inconsequential, attacked elsewhere with W87. W87 was a major mistake because B86 unintentionally affected the status of the entire upper side. Diagram 3 shows the next few moves of the game. The program devastated White's stones, saved a dead Black group, and even retained sente!

Now that we've seen what the tactician can do, let's see how it does it. The discussion will be abstract, not tied to any specific example. If you want to read about a specific example, see the paper on tactical modeling in the bibliography.

Here is a quick overview of the tactical process. The tactician is called to answer a specific question. It will use its expertise to propose a reasonable move to accomplish the objective. Each move is played hypothetically (i.e., it can be later retracted or "backed up"), and it generates a new board position. From this new position, the tactician will propose another reasonable move, etc. Eventually some position can be judged a success or failure with respect to the overall objective, thus terminating one variation. The tactician retracts hypothetical moves to return to an earlier position where the failing side had alternative move choices. A new hypothetical move will result in another variation, etc. When the tactician has retracted all hypothetical moves and has no more to try, it returns as its answer the successful first move, if any. If the problem is simple enough, all the reasonable variations will have been explored and the answer certain. But the tactician does not explore all reasonable variations in complex problems. Each side is limited to two or three failing variations. If one side uses up its limit, the tactician will cease further exploration, back up to the initial position, and return a failure indicator for that side. The resulting answer is not guaranteed, but is merely a "best guess."

The task of selecting and examining reasonable variations is handled by coordinating a hierarchy of "experts" who work on the formation, evaluation, and implementation (moves) of goal-directed "chains of thought." Some of the "experts" generate goals and subgoals, while others propose moves to accomplish them. Some work strictly with the current goal and board position, while others use the broader context of all goals and subgoals. This goal-directed behavior results in very restricted searching. The program typically makes only 60-80 hypothetical moves a turn for all searches. This completes the brief summary. Now for more detail.

Diagram 4 shows the overall component structure of the tactician. The names have been changed from previously published papers to facilitate comprehension, but refer to the same program. The tactician, PROBE, is always given a goal and associated target. For example, the goal might be to find a move to kill the target. PROBE will first use REJECT-SEARCH? to decide if lookahead is unnecessary. Suppose, for example, PROBE was asked to break a linkage, and it was already known that one of the linkage endpoints was killable. Clearly either the linkage can be broken, or both endpoints die together. In either case, the move to kill the endpoint is a satisfactory answer to destroying the linkage, so REFECT-SEARCH? would skip the search and go directly to STORE-RESULTS. The conclusion would be filed in the program's data structures, and PROBE would return the answer.

Diagram 4

```
PROBE
    REJECT-SEARCH
    SEARCH
        DEVELOP-GOALS
            POSITION-CHECK
                GENERAL-FAIL?
                INTERRUPT-GOALS
                RESUME-HIGHER-GOAL
                -------
                RESULT-ANALYSIS
            GET-RESOURCES
            TERMINATE-GOAL?
            SUBGOAL
            GOAL-MOVE
            REJECT-MOVE?
            -------
            REMOVE-GOAL
        MAKE-MOVE
        -------
        REMOVE-MOVE
    STORE-RESULTS
```

If, however, REJECT-SEARCH? has no reason to abort the lookahead, then SEARCH will be called upon to answer the question posed to PROBE. SEARCH asks DEVELOP-GOALS to find the next best move for a player, and hypothetically places that move on the board. If, instead of returning a move, DEVELOP-GOALS indicates that success or failure has been achieved, then moves will be retracted and DEVELOP-GOALS will again be called from an earlier position to find an alternate move for the failing side.

DEVELOP-GOALS tries to find the next move for a player by developing and using chains of goals. Each goal in the chain has associated with it expert routines which "know" how to accomplish the goal, when to quit the goal, etc. In order for lookahead to work, both sides must be doing related things, so there are actually two goal chains, one for each side. In general, the goals in these two chains are related such that if one side is working on some goal, his opponent is trying to oppose it. Initially, both chains have opposing goals because the search cannot be performed unless we assume that one side will try to thwart the other. Thus, if the defender's goal is to join strings A and B, the attacker's goal will be to keep them separated. If, to join these strings, the defender decides to try to capture an intervening attacker's string, the defender will add a string-attack goal to his chain. At the same time, the defender will add a defend-string goal to the attacker's chain. While the defender is trying to kill the attacker's string, the attacker will be required to defend it (or fail in keeping A and B separated). Thus, for each goal on one side's chain, there is an opposing goal on the other side's chain.

Now, however, let us assume the defender, in order to kill the attacker's string, decides to save some weaker adjacent defender's string. The defender will add a defend-string goal to his chain. What should he add to the attacker's chain? Must the attacker try to kill this weaker defender's string? No. The defender places a null (do-nothing) goal on the attacker's chain. This means that, while the defender intends to save his adjacent string in order to kill the intervening attacker's string, the attacker is not obligated to kill the defender's string. The attacker is free to do what he thinks best to protect his intervening string. Thus, whenever a side adds a goal to his chain, if he knows his opponent must react to it, he adds an opposing goal to his opponents chain. Otherwise he adds a null goal.

(continued next page...)

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Having looked at a goal chain, let us see how it is developed and used by DEVELOP-GOALS. DEVELOP-GOALS will have been told whose turn it is, and will have been given the initial simple chain consisting of the main goal of the search. DEVELOP-GOALS will now ask a series of "experts" to examine the chain and the position to see what should be done next.

The first expert is POSITION-CHECK. Certain tests must be made the first time we see a position. GENERAL-FAIL? will see if there is some reason for disliking the current position. If, for example, a sizable string just died (and it wasn't previously dead), then failure will be declared for the side now on the move, and DEVELOP-GOALS will quit at this point. While sometimes you can sacrifice large strings, our program is not strong enough to consider it reasonable.

Assuming there is no general reason for abandoning this position, INTERRUPT-GOALS looks to see if we should temporarily interrupt processing the current goals to protect some accidently affected string. If, for example, the opponent's most recent move ataried a string, the program will try to protect it. The atari may be unintended, the string unimportant. But as a first guess, you hate to give up anything, so you try to defend the string and accomplish everything else as well. If you can't, then you'll consider abandoning the string. But that's a later decision. INTERRUPT-GOALS may add additional defend-string goals to the chain, which have temporary priority.

Regardless of what INTERRUPT-GOALS may have done, RESUME-HIGHER-GOAL looks at the status of what the current side is trying to do. If some goal in the chain no longer makes sense, then RESUME-HIGHER-GOAL will clear off that goal as well as all goals added to it as subgoals. If, for example, the goal chain has on it "counterattack string A to defend string B," and string A now has many more dame than string B, continuing the counterattack doesn't make much sense. The counterattack goal and all subgoals in service of it are removed, and the main "defend string B" goal returns to focus. Sometimes RESUME-HIGHER-GOAL detects conditions which require a different action than removing goals. If one of the goals in the chain was to defend a string, and that string is now in danger of being laddered, then clearly that string needs immediate defense. But it may be possible to continue the present subgoal by finding a move which accomplishes ladder protection and the current goal simultaneously. RESUME-HIGHER-GOAL will note the ladder danger, and later on, all moves proposed in this position to accomplish a goal must also block the ladder.

Once out of POSITION-CHECK, DEVELOP-GOALS begins to process its goal chain to find the next move. The first step is to locate the resources available to the current goal. This is done by GET-RESOURCES. Each goal has its own resource expert. In the case of an attack-string goal, some of the resources are: all of the dame of the string, geta moves, weak adjacent friendly strings, and eye locations.

Once all the resources have been gathered, TERMINATE-GOAL? can then decide if the goal can be judged a success or failure, given the available resources. Clearly if a string has only one dame and if it is the turn of the attacker, then that string is doomed. If the string is absolutely essential (e.g., if it is the main target), DEVELOP-GOALS can return immediately that this position is a success for the attacker. If the string is not essential, then the lookahead will have to continue and see what happens when that string gets killed.

If a goal is terminated, REMOVE-GOAL will remove the goal and countergoal from their respective chains and note why they were removed. If REMOVE-GOAL is not allowed to remove the goal, the entire position will be terminated. Otherwise, DEVELOP-GOALS will then loop back to GET-RESOURCES to process the next higher goal.

If the goal cannot be terminated yet, then SUBGOAL tries to decide if the goal is best handled directly, or if it should be handled by introducing subgoals. The direct way to capture a string, for example, is to successively fill up its best liberties. Sometimes, however, you may need to take time out to defend your own adjacent strings, or play a geta move to prevent the string from escaping. If a subgoal is needed, then SUBGOAL will add it to the chain. The appropriate counter-goal will also be added to the opponent's chain. If a goal is added, then DEVELOP-GOALS will loop back to GET-RESOURCES, beginning the goal process anew with the new subgoal.

There can be any number of goals and subgoals in the service of higher goals, but eventually, because no goal may be repeated, the program must use the direct method of accomplishing a goal. GOAL-MOVE will then select the best move, perhaps advancing more than one goal with the same move.

The move chosen by GOAL-MOVE will then be "second-guessed" by REJECT-MOVE?. Just because a move is the best one to accomplish a goal doesn't mean it is really a good move. Certainly it may not be good strategically, but that's not considered here. Within PROBE only tactical considerations relevant to the search goals will be used. General tests involving low dame and edge-related characteristics will be made for each proposed hypothetical move. For example, the best move to attack a string may be self-atari. Usually, such a suicidal move is useless, and will be rejected. If a self-atari move is bad, perhaps you can first play so as to gain enough liberties to make the move. This will require that a "prepare-to occupy" goal be added to the chain for this new goal, and DEVELOP-GOALS will have to loop back to GET-RESOURCES. REJECT-MOVE? will also use goal-specific knowledge. If, for example, the proposed move for an attack-string goal will reduce its target to 2 liberties, but the string is being attacked to save a string in atari, then the move is too slow. The goal expert would reject the move, and DEVELOP-GOALS would loop back to TERMINATE-GOAL?.

If all goes well and a move is allowed, DEVELOP-GOALS will return it to SEARCH. The goal chain will remain as it was when the move was chosen, so when SEARCH makes the move hypothetically and again calls DEVELOP-GOALS with the new position, DEVELOP-GOALS can pick up where it left off. Now however, it will be the opponent's turn to move, so DEVELOP-GOALS will work on the opposing goal chain. SEARCH will alternate which side's goals get developed, and place the move returned by DEVELOP-GOALS upon the program's hypothetical board until one side finally succeeds or fails. SEARCH will then back up the board to the nearest position where a move was tried and is now known to lead to failure. DEVELOP-GOALS will then be asked to propose an alternative.

Now, however, DEVELOP-GOALS and its collection of experts will have new information to draw upon. First, the goal chain that later fails (and why it failed) will be available. This information can be used to try to anticipate and prevent the later problems. Suppose, for example, we know that subsequent search will fail because a critical string will die. When the problem was first detected, it was too late to do anything about it. But now, having returned to an earlier position after discovering the failure, we might be able to fix it by preemptively defending the critical string. Once again, the first thing DEVELOP-GOALS does is call POSITION-CHECK. Only this time we have seen this position before, so a different set of tests is used. RESULT-ANALYSIS, the expert involved, examines the results returned from the failed line. Since the reason for failure is that some essential string died, RESULT-ANALYSIS would add a defend-string goal to the chain and then allow processing to continue with GET-RESOURCES. Since we must defend this string, the goal is marked as unremovable. If REMOVE-GOAL is later called for the goal, it will cause the entire position to fail. If the goal cannot be added to the chain because it previously was tried for some other reason and failed in this position, then DEVELOP-GOALS will be forced to return a position failure immediately.

For another example, consider a situation where we wish to connect two stones A and B. One way to do this is to join stone A to an intermediate stone X, and the intermediate to stone B. Suppose the tactician tries a sequence to first connect A to X, then connect X to B and determines that it fails. Further suppose the reason for failure was that, while A was successfully joined to X, X was severed completely from B. In that case the program would try reordering the two connection subgoals. Often making the second connection first will solve the problem. Of course, if you had perfect expertise, you might have judged in advance which connection would prove more difficult. Our program tries to do so, but this is not always possible. Some questions can only be resolved by trying and finding out.

After a failure, additional new information also comes from "impact" knowledge. Whenever the program makes a hypothetical move, or decides not to make a move for whatever reason, the program remembers why it did or didn't. This consists of noting which board points were used in the judgement, and which strings with what liberty counts were involved. These points constitute impact knowledge. If one of these points is played upon, that would result in a different decision being made during processing of the failed variation, and might alter the moves chosen and final result. The impact points are passed back to earlier positions in the search whenever a sequence fails, and can be used to reject alternative moves. Suppose you search from a position and discover that you fail because of some ladder against your stones. Upon returning to that earlier position, any alternate moves you try had better affect the ladder, or you will fail in the same way. In the program, as we have seen, any move proposed to advance a goal is second-guessed by REJECT-MOVE?. One of the tests will be to match the move with all impact information accumulated so far. If several moves have failed in this position, then the next move must take into account all previous failures. Otherwise one or more of them will recur, and this next move will be worthless.

Impact information is extremely valuable within the search, but it is also used outside of the search. Once you have performed a search, there is no reason to do it again until someone plays a move which affects it. Many searches will remain unchanged turn after turn. This is what happened with the example of Diagram 2. B86, having been played on an impact point, triggered a new search which resulted in a new answer. Impact information is equally useful in detecting tactical interactions. Using search interaction information is vital in advanced play. If searches have impact points in common, there is a strong possibility that a move on a common impact point will alter both searches, and the opponent will only be able to defend one of them. The classic example is the multi-purpose ladder block.

As we have seen from the foregoing discussion of the tactical control structure, each piece of expert knowledge is kept in a logical place in a goal-oriented analytic process. Thus it is easy to add new knowledge without creating problems and confusion. Even within one component, such as TERMINATE-GOAL?, all knowledge about all goals is not lumped together. Instead, it is gathered into separate goal-specific subprograms. TERMINATE-GOAL? is actually a collection of goal experts and only the appropriate expert is used to process the current goal.

THE PROGRAM'S PERCEPTIONS CG-4.3

In section one we said a Go program needs three things: perception, knowledge, and control structure. Section two described the control structure used by our tactician. This section covers the perceptions of our program.

Our program uses a large number of structures at different levels of abstraction. Each structure has various properties, including notions of stability, and has various subprograms (experts) responsible for proposing moves to affect that structure's stability. Besides simple experts, there are also routines that coordinate a number of simultaneous or successive experts. These are the theoretic processes, such as sector fights and contact fights, described in "Instant Go." This section concerns itself only with the basic structures and some of their properties.

To help you keep track of the relationships between the various data structures, here is a quick overview. POINT OCCUPANCY is the fundamental perception. Aggregations of points lead to STRINGS (fundamental units of capture), LINKAGES (barriers and potential connections), SECTOR LINES (long-range linkages), and LENSES (stone configurations with known continuations). If the connections are absolutely secure, strings and linkages can be combined into VIRTUAL STRINGS. Strings and linkages are combined into GROUPS, even if the linkages cannot be guaranteed. Our program analyzes the EDGE of the Go board in conjunction with linkages, to detect areas of play along the edge. Strings, linkages, and the edge can contain ENCLOSED TERRITORY.

While some perceptual structures are aggregates, others reflect properties of aggregates. WEBS analyze the containment of a group. TACTICAL properties of aggregates are also treated as perceptions. INFLUENCE and INFLUENCE BLOCKS describe the control stones have over nearby vacant intersections. MOTIVATION, why a structure was created, is another aggregate property and is used to coordinate moves. With this sketch in mind, let us look at the specifics of each structure.

POINT OCCUPANCY and STRINGS (sets of contiguous stones of one color) are basic to Go. The usual properties of strings are dame, number of stones, and adjacent emeny stones. In our program, whether a string can be captured or saved is also a basic property.

A LINKAGE is a barrier zone between two nearby stones of the same color having vacant intermediary intersections. Linkages have the effect of dividing the board into regions, and provide the possibility of joining the linkage endpoints into one string. Both barrier and connectivity effects are important. The barrier effect occurs with the mere existence of the linkage. Connectivity is computed by patterns (linkage lenses) and tactical analysis.

Our program recognizes the classic linkages: kosumi, ikken-tobi, nikken-tobi, kogeima, and ogeima. In addition, a straight-line edge linkage between a stone on the 1st through 4th lines and the associated edge is recognized, providing that the intervening points are vacant.

Linkages are of three types. "Normal" linkages have an open path providing possible connection. Having that open path, normal linkages are used to define groups. If the path becomes obstructed, then the linkage becomes a "dead" linkage. No connection is assumed, but as long as useful plays exist to regain the barrier effect, the linkage will not disappear entirely. "String-capture" linkages are pseudo-linkages which reflect the connectivity among stones capturing an enemy string (if it can't escape).

Among the properties of linkages are whether they can be joined or separated (which may require lookahead to decide), whether they cross opponent linkages, and why they were created. If, for example, the linkage was merely the accidental by-product of a move, maintaining the linkage is not likely to be essential.

SECTOR LINES, a generalization of the linkage barrier concept, are located using first-level webs and influence blocks. They are used in stability assessments and move generation.

VIRTUAL STRINGS are strings connected together by indisputable linkages. They are only important in contact fights, where dame properties of strings are important even if the string cannot be captured. Since virtual strings share dame, a weak string in a contact fight may not really be weak if it belongs to a safe virtual string.

The EDGE of the board provides a source of unusual and profitable moves. Most of the fuseki, early midgame, and valuable endgame moves will be played with respect to the edge. Computer programs generally add extra

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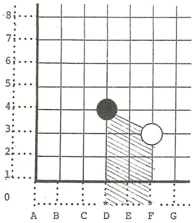
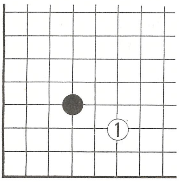
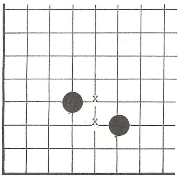
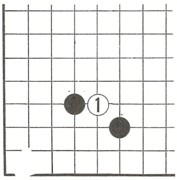
rows and columns to the board to provide a set of points off the edge. In our program, lines 1 through 4 constitute the edge band, which is sorted into blocks of space where plays are to be expected. The blocks, edge elements, are delineated by two edge linkages in succession (not necessarily adjacent), which do not belong to the same group. For example, an edge element is created when White plays an F3 kakari against a Black D4 handicap stone. Linkages from F3 to F0 and D4 to D0 bound the neutral space between, where both sides will eventually play. Essential characteristics of edge elements are the distance between the linkages and the strengths of the linkages. An edge element can be a moyo (if both boundaries are the same color), a fuseki extension area (if the area is large enough), a slide area (if one linkage is undercut), or a stable endgame area. Moves are suggested either from extension "experts" if the area is big enough, or from contact and approach lenses monitoring the two stones bounding the edge element (when the opposing stones are sufficiently close).









GROUPS are sets of strings of one color held together by linkages. Groups coordinate information from all data structures except virtual strings. Ryder was the first to make attack and defense of weak groups a decisive factor in program play, and our program continues this.

WEBS monitor maneuvering room around a group. The web is spun around the group in layers, simulating two-dimensional spacial vision. The first layer is the external dame of the group, the second is the dame of those dame, etc. In this process, linkage points act like stones. Each web point is tied to its immediate left and right neighbors in the same layer, and to nodes adjacent to it in the next closer and farther layers from the group. The web is only spun over points the group can "see"; a group cannot "see" past a linkage, a string or the edge. Webs are spun for at most 9 layers.

The perimeter of a web is the continuous loop of outermost points in all directions. Some perimeter points may be on blockages, while others may be at the 9th layer of an open area. Perimeter information is extremely useful to a group. The group can determine where plays could be made to enclose it (if it isn't already surrounded), where to run to escape, where nearby friendly groups are, what containing linkages might be attacked, etc.

Walls and contact fights are detected at the first level of a web. All of the web points between the first level and the perimeter have no immediate meaning. They are like the blank space you ignore between your eyes and some object. Should something intrude into that black space, however, you immediately notice it, its location with respect to other objects, etc.

ENCLOSED TERRITORY is a set of vacant points or dead enemy stones completely contained by a player's strings, linkages, and the edge. Territory is basic to group safety and game scoring. Each enclosed territory maintains a minimum and maximum eye value obtained either by estimation or lookahead. Estimation uses information about boundary undercutting, corner location, defects, dead shapes, internal enemy stones, etc. One useful territorial sub-construct is the LUMP, a block of empty, non-linkage territory points formed from any number of overlapping blocks of

4 points. It is often possible to destroy all of a lump at once, but in multi-lump territories, only one lump at a time can be destroyed.

LENSES monitor stone configurations and suggest moves that are known pattern continuations. A lens is actually a collection of "fields," sets of ordered points around some focal point(s). Each field has been created to watch for the development of some sequence of moves. A simple example occurs in the lens monitoring a small knight's move linkage. Assuming Black linkage stones at D4 and F3, the simplest field consists of the points D4, F3, E4, and E3. Points D4 and F3 are already occupied by Black at the time the lens is created, and the lens will expect various sequences. One such is W at E4 to attack the linkage, followed by B at E3 to maintain the barrier. There are many different fields watched by the linkage lens, including ones expecting bamboo joints and other forms of safe connections. Each field recognizing the configuration monitored will supply moves and associated information about the moves to the lens. When fields no longer recognize a pattern, they disappear (so a lens gets "smaller" over time).

The lens supplies information about suggested moves and their values for both players, and global status information about the situation being monitored. A linkage lens, for example, not only tells how to attack or defend the linkage, but also gives an estimate on how secure the linkage is, whether it is in danger of being totally smashed, etc. The move information can be quite complex. In a joseki lens, moves do not have fixed values. Instead, a subprogram is executed to determine whether the joseki move is appropriate given the current board situation.

Joseki lenses monitor corner and side patterns, including common invasion configurations. Linkage lenses handle attack and defense of linkages. Contact fight and approach lenses deal with nearby opposing stones, suggesting ways to "close up the gap" or shift the direction of wall-building. Shape lenses recognize good shape development moves and their vital attack points. Urgent shape lenses recognize configurations that can be driven into bad shape.

The TACTICIAN (described in detail in section two) handles string capture, connection, single-point eye formation, and dead shape searches. It answers the question "can it be done?," returning only one of possibly many moves to do the specific job requested. The best move is located by successive calls to the tactician. The control structure locates other effects it thinks can be combined with the primary goal and asks the tactician if a move to do some related task will also handle the primary one.

INFLUENCE is a difficult concept involving the power stones have over nearby vacant points and the potential for making territory there. The traditional approach has been to have stones "radiate" influence to nearby points. This influence is either positive or negative, depending upon the color, and diminishes in value with distance. Contiguous points with influence of the same sign are gathered into unordered sets, thus providing a blurred map of who controls which vacant areas. However, this method fails to distinguish between a circular blob of influence radiated by a simple line of stones not confined by the enemy, and a circular blob of influence radiated by a semi-circle of stones closely surrounded by enemy stones. The latter is easy to turn into territory, while the former is almost useless.

To distinguish these two cases (and others), INFLUENCE is first radiated by our program in the traditional manner using Ryder's algorithm. Contiguous, same-signed influence points that do not cross and do not include stones or linkage points are then gathered into a blob. The perimeter loop of this blob is located and then iteratively "shrunk." This provides nested loops. As shrinking cannot occur across stone and linkage boundary points, eventually the loops may give way to arc seqments (strips), if shrinkage enters into a potential territory pocket. The farther in an influenced point is from the perimeter loop, the more valuable the point, because it is easier to convert it into territory. As a result of the spatial ordering provided by the nested loops, precise information is available for generating moves to secure or attack influenced points. This structure is called an INFLUENCE BLOCK.

MOTIVATION is important in human Go, and our program keeps track of explicit reasons why each move was played, which linkages it deliberately created for what reasons, etc. While it is possible to play by re-analyzing a board every turn, it is more efficient for a program to remember what it was doing and merely check that continuing it is reasonable. If a program plays by motives, it is also a lot easier to debug.

The program's data structures are complex, and there are many of them. To be able to afford them you need a program that can selectively update, because recomputing all data every turn is too costly. Any program that can do the appropriate updating will be extremely complex--but--after all, so is the human brain!

Computer Go Bibliography CG-4.4

This bibliography contains general articles about computer Go, and papers about specific programs. Within each subsection, references are ordered most recent first. Zobrists's and Ryder's programs were the earliest, but are no longer being developed. The Reitman-Wilcox program is both functional and still under development. Brown and Benson are both working on aspects of Go.

General Introductions and Early Efforts

Brown, D.J.H., "Is Go harder than chess?" Personal Comp. 3:12 (1979).

Brown, D.J.H. and Dowsey, S., "The challenge of Go." New Sci. 81 (1979). Pp. 303-305.

Bradley, M., "The Game of Go--The Ultimate Challenge?" Creative Computing 5:3 (1979). Pp. 89-99.

Wilcox, B., CG Chapter 1 "You think Programming Chess is hard?" AGJ 13:4-6 (1978). Pp. 44-47.

Wilcox, B., "Instant Go" AGJ 12:5-6 to present AGJ 14:5-6.

Thorp, E. and Walden, W., "A Computer Assisted study of Go on MxN boards." Information Sciences 4:1 (1972). Pp. 1-33.

Thorp, E. and Walden, W., "A partial analysis of Go." Computer Journal 7:3 (1964). Pp. 203-207.

Remus, H., "Simulation of a learning machine for playing Go." Proc. of the International Federation of Information Processing Congress. Amsterdam: North-Holland Pub. Co., 1962. Pp. 428-432.

Lefkovitz, D., "A strategic pattern recognition program for the game of Go." Wright Air Development Div. Philadelphia, Pa.: Univ. of Pa., Moore School of Elec. Eng. Tech. Note No. 60-243 (1960).

Zobrist's Program

Zobrist, A.L., "Feature extraction and representation for pattern recognition and the game of Go." Ph.D. Thesis, Univ. Wisconsin, 1970. Microfilm No. 71-3,162.

Wilcox, B., CG Ch. 2 "Zobrist's Program" AGJ 13:4-6 (1978). Pp. 48-51.

Ryder's Program

Ryder, J.L., "Heuristic analysis of large trees as generated in the game of Go." Ph.D. Thesis, Stanford Univ., 1971. Microfilm No. 72-11,654.

Wilcox, B., CG Chapter 3 "Ryder's Program" AGJ 14:1 (1979). Pp. 23-28.

Reitman-Wilcox Program

Wilcox, B. and Reitman, W., CG Chapter 4 "Reitman-Wilcox Program." AGJ 14:5-6 (1979).

Mann, B. (untitled). Personal Computing 3:6 (1979). Pp. 83-86.

Reitman, W. and Wilcox, B., "The structure and performance of the Interim.2 Go program." Proc. of the 6th International Joint Conference on Artificial Intelligence. IJCAI, Tokyo 1979. Pp. 711-719.

Reitman, W. and Wilcox, B., "Modeling tactical analysis and problem solving in Go." Proc. of the 10th Annual Pittsburgh Conference on Modeling and Simulation. Instrument Soc. of Amer., Pittsburgh, 1979. Pp. 2133-2148.

Reitman, W. and Wilcox, B., "Artificial Intelligence Systems for Policy Analysis and Planning?" First International Symposium on Policy Analysis and Information Systems (1979). In press.

Reitman, W. and Wilcox, B., "Pattern recognition and pattern-directed inference in a program for Playing Go." In D. Waterman and F. Hayes-Roth (Eds.), Pattern-directed inference systems. New York: Academic Press, 1978. Pp. 503-573.

Reitman, W., Nado, R., and Wilcox, B., "Machine perception: what makes it so hard for computers to see?" In C.W. Savage (Ed.), Perception and cognition: issues in the foundations of psychology (Minnesota studies in the philosophy of science, vol. 9), Minneapolis: University of Minnesota Press, 1978. Pp. 65-87.

Reitman, W. and Wilcox, B., "Perception and representation of spatial relations in a program for playing Go." Proc. of the 30th National Conference of the Association for Computing Machinery, 1975. Pp. 37-41.

Reitman, W., Kerwin, J., Nado, R., Reitman, J., and Wilcox, B., "Goals and planning in a program for playing Go." Proc. of the 29th National Conference of the Association for Computing Machinery (1974). Pp. 123-127.

Brown's Research

Brown, D.J.H., "Hierarchical reasoning in the game of Go." Proc. of the 6th International Joint Conference on Artificial Intellegence. IJCAI, Tokyo 1979. Pp. 114-116.

Brown, D.J.H., "Reasoning about games." AISB newsletter 32 (1978) Pp. 14-17.

Benson's Research

Benson, D., Hilditch, B., and Starkey, D., "Tree analysis techniques in tsumego." Proc. of the 6th International Joint Conference on Artificial Intelligence. IJCAI, Tokyo 1979. Pp. 50-52.

Benson, D., "Life in the Game of Go." Information Sciences 10:1 (1976). Pp. 17-29.

Benson, D., Evers, P., Miller, J., Tackett, M., and Starkey, D., "Computerizing the Game of Go." In Proc. Northwest 76: ACM Pacific Regional Symposium, ACM, New York, 1976.

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THE 1979 EUROPEAN GO CONGRESS

by Terry Benson

As in years past, the 1979 Congress was a superb Go event--bigger than ever, more players, more activities, more media coverage, more prizes, and more excitement. The venue was the resort town of Konigswinter, near Bonn, the West German capital. The Jugendhof Rheinland (a state run facility for colloquia and conferences) was an idyllic site: spotless, well run, inexpensive ($15 a day full room and board) and spacious. The 5 playing rooms, main auditorium, 4 rooms for organizers, a lounge, eating facilities for 100 and 75 beds made it an ideal choice.

As always there was more Go in two weeks than any player could want. The main tournament was 9 rounds with 112 players scheduled to play 1 game a day (the "serious" game) in a huge Swiss McMahon field from 5-dan to 20-kyu. The handicap tournament was a self-running event (117 players). Anyone could play anyone anytime and report the result. Igor Bizjak (Yugoslavian 3-dan) played 67 games and Schwind (German 3-dan) played 72. The weekend tournament was a 6-round (3 per day) Swiss-McMahon with 110 players (many who came only for the weekend).

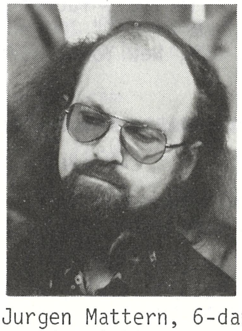
Two lightning tournaments occupied several evenings: 60 players in one and 96 in the other. The 10 minute sudden death time limit is an exciting way to go.

The National team tournament was a small ongoing event. The"U.S. & A"team was the undefeated winner. It's strange composition was (luckily) never objected to. Among the team members were Bruce Wilcox, Ann Arbor, MI 5-dan, Major Craig Hutchinson, U.S. Army West Germany 1-dan, John Power, Australian 3-dan and editor of Go World, and Terry Benson, New York City 1-dan and AGJ editor.

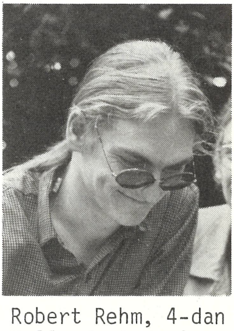
National Team Tournament
U.S. (on Rt.) Wilcox, Power(!), Hutchinson
vs. Austria

Meanwhile, the "Main Event" was the European Championship, an invitational, 20-player Swiss tournament limited to those nominated by the European Go Federation countries. It had most of the top native European players including the last minute addition of Jurgen Mattern, 7-time European Champion from Berlin.

Mattern was the clear pre-tournament favorite. But the average level of European Go has risen in recent years, and by round 7 (of 9) it appeared that Robert Rehm, Dutch 4-dan would run away with the title. Mattern had 2 losses: to Rehm and Ronald Schlemper, Dutch 5-dan. So did Schlemper (to Rehm and MacFadyen, Great



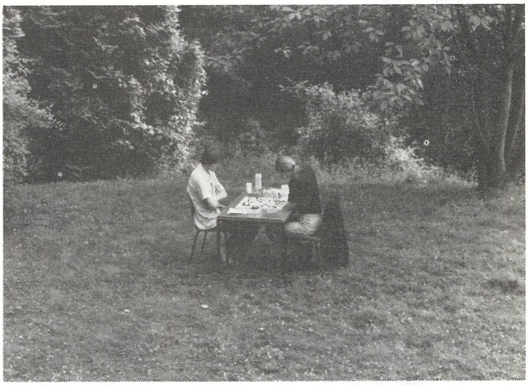
Jurgen Mattern, 6-dan
Berlin - 1979 European Champion



Robert Rehm, 4-dan
Holland - 3rd place

Britain 5-dan). But Rehm's unbeaten streak was broken by Rebattu (Dutch 5-dan) and Van Zeijst (Dutch 4-dan) dropped him into a 3-way tie for 1st. The short time limit playoffs were focal points the last days of the Congress. Rehm lost to Schlemper. Then Schlemper had a clear win over Mattern but, under the pressure of byo-yomi, could not find the tesuji to save a large group in a difficult midgame fight. Mattern took his 8th European title, but notice was served that it will not be an easy crown to keep.

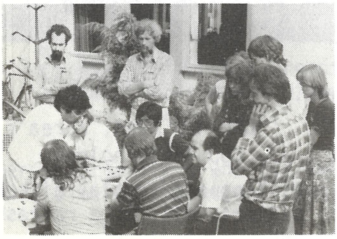
Ronald Schlemper, 5-dan
Holland - 2nd place



Schlemper vs Rehm - Tournament game

Two of the Championship games were televised each day on a closed circuit system to the common room and snack bar area by a video cameras mounted in the ceiling of the playing room above boards 1 and 2. The closed circuit was also used to record portions of the congress and to play back a surrealistic video "wrap-up" look at the congress during the final ceremony. Herr Stein, the manager of the Jugendhof, had made the arrangements with the local State government to provide video equipment; his help was crucial to many facets of the event. That he is a Go player of long standing made his involvement natural - although no easier.

This congress had a superabundance of professionals, simultaneous games, lectures, and commentaries. The consistent size and importance of the European Go Congress as an event (this was the 23rd) and the tremendous interest by the major Go playing countries drew five professional strength players. There was so much non-playing Go activity that the Congress often had the air of a colloquium on the subject.



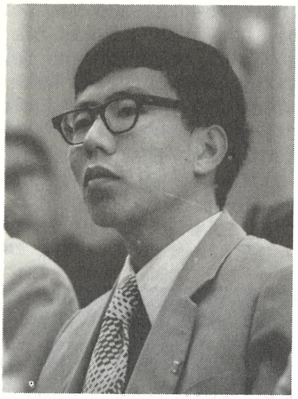
Yoshida, 4 dan playing a simultaneous al fresco

Nagahara, 6 dan & Hunter (GB 1d)

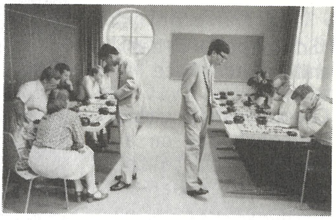
Two Japanese pros represented the Nihon Kiin: Nagahara, 6 dan (well known to Western players) and Yoshida, 4 dan (an affable young pro). The Japanese - English language barrier was shattered by the presence of John Power, editor of Go World and an adjunct employee of the Nihon Kiin. Chizu Kobayashi, 5 dan pro and former Women's Honinbo, was also at the congress on a private visit; and her English is the best of any of the Japanese professionals although Nagahara has gradually picked up a substantial proficiency in English. Either he or Yoshida played simultaneous games or lectured each day for 2-3 hours in the afternoon. In their free hours they could often be found socializing or offering casual commentary in the lounge.

From the People's Republic of China came two players and an interpreter/guide. Both players were extremely good natured and both had tremendous enthusiasm for Go. Hua Yigang placed fourth in the 1978 Chinese Championships. 28 year old Xu Rongxin qualified for the 1979 eight player final tournament. Both are roughly comparable in strength to middle level Japanese professionals.

The sole difficulty in dealing with them was language; their interpreter spoke only German and Chinese. So English - the primary language at the Congress - was insufficient.



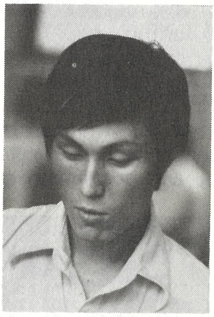
Hua Yigang



Xu (left) and Hua (right) playing simultaneous against 9 Europeans and 1 American. (Hutchinson - at the far right - won his game)

The two Chinese players gave many simultaneous demonstrations, played a game against one another (commented upon by the Japanese pros), and could often be found playing one-on-one games in one of the small rooms of the complex.

Hua & Xu - 1 on 1



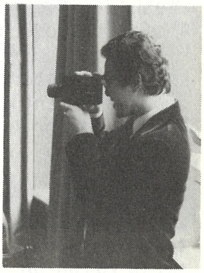
Cho Hun Hyen, Korea's top title holder

The Hangook Kiwon (Korean Go Assn.) sent its preeminent Number 1 player, Cho Hun Hyen. Mr Cho at age 27 holds 6 of the 8 Korean professional titles; he is without doubt the dominant Korean pro.

During the congress he played simultaneous or gave lectures practically every day. He lost no more than one game out of the 70+ he played. He was supremely self-confident in his skill at the game. When the tournament organizers were attempting to arrange a match between two of the international masters, Cho expressed a willingness to play either one of the Japanese or one of the Chinese (!) players. His is a refreshingly brash spirit in a cautious and politicized world.

(Below: Europe vs. Asia)

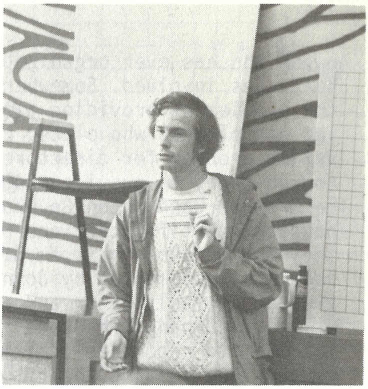
The first day of the Congress pitted a team of 24 Europeans against 24 Asians: the 2 strong Chinese and 22 amateur players from a Go-playing tour group brought to the Congress by Shirae, 6 dan. He has become a TV celebrity from his weekly TV Go program. Recently he has featured games from the World Amateur Champs.



Shirae, 6 dan

The final score in the inter-continental match was 14:10 in favor of the consistently lower ranked Europeans (at least one rank per board) in the even game play.

The Congress was neither a purely European nor Europe-Asian event. Two Americans participated in its organization. This writer was one. I had not intended arriving at the Congress so early; but, as I was the first registrant and there was lots to do, I almost automatically assumed an assistant role. It was quite a "busman's holiday" for a Go organizer. For diplomacizing among the countries, advising on the operation of the McMahon system, helping negotiate with the professional players, taking many pictures used in the Congress' magazine, and generally pitching in, I received a small award.



Bruce Wilcox, Instant Go Author and U.S. 5 dan lecturing at the Congress

I felt that one of my major contributions came through a minor piece of cajoling of another American at the Congress. I talked to Bruce Wilcox (of Instant Go fame) and encouraged him to lecture at the Congress. Bruce gave 6 lectures attended by 40-50 people each and played some 40 simultaneous games (winning 65%). The Instant Go concepts provoked much interest and discussion. One strong kyu player remarked that after learning IG principles "for the first time I've been comfortable giving 9 stones. I just kept cutting sector lines. When things weren't going well, I stuck stones somewhere to create new lines and kept playing."

Some of the Congress organizers-at the far right is Tournament Director Gottfried Schippers of Bonn.

In spite of the outside help the successful running of the Go Congress fell to the German organizers who did the hard work. They held up a tradition which this side of the Atlantic may some day emulate.

The Congress of '79 was in all a marvelous one filled with the kind of excitement about Go only possible within the critical mass of a large and well run Go event.

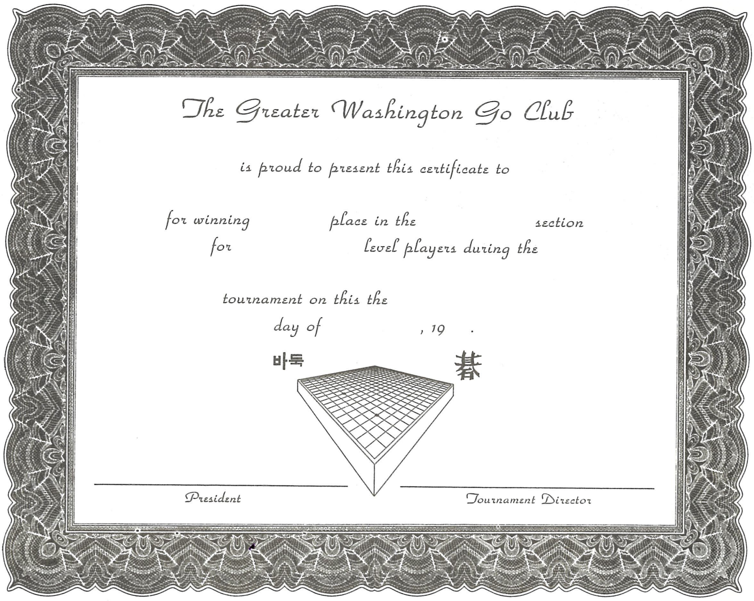
* *

PRIZE IDEA

Anyone who has ever organized a tournament can reel off a long list of the headaches involved. Somewhere near the top of that list would probably be the problem of providing attractive prizes, especially in kyu sections and for dan players who placed high but did not win. This is a particularly vexing problem for directors of small tournaments, which do not generate enough money to provide many cash prizes.

The Greater Washington Go Club has addressed this problem by preparing some handsome certificates, one of which is seen below. Suitable for framing, they are printed in sepia ink on diploma quality parchment. This excellent idea was implemented by John Moses and John Goon using the GWGC logo created by Paul Stygar and a standard form and typesetting done by the printing company. The total cost was $42 for 100. The certificate enables the GWGC to recognize achievement in a wider range of sections. More players are leaving their tournament with the satisfaction of having won something; and, naturally, they are more likely to return. In addition these awards make good conversation pieces to introduce friends to the game... who may play the lower section of the next tournament and win their own certificate...and so on.

Kudos to GWGC for the stylish execution of a real tesuji. For sample certificates, send 50¢ to Art Lewis, 11530 Highview Ave., Wheaton, Md 20902.



The Greater Washington Go Club

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for winning place in the section
for level players during the

tournament on this the
day of , 19 .

바둑 碁

President

Tournament Director

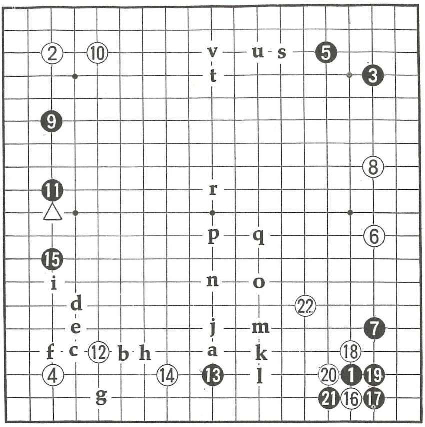
****

NB: Walls have ears but no eyes.

****

1ST GAME 1976 MEIJIN MATCH

Black: Otake, Meijin
White: Ishida, 9-dan
Notes by Terry Benson from a lecture given by Shirae, 6-dan at the Seminar in Instruction Methods for Overseas Teachers of Go, Oct. 20, 1978.



W6 is typical of Ishida's slow paced game. He is known as the "computer". The more drawn out the game the better he likes it.

5&3 or 1&7 are bigger than 6&8. Ishida knows this but doesn't think the difference is so much. If 5 were one point lower, 6&8 would be perfect because of the weakness that would remain at the top.

Choosing the next point is crucial. First Black must pick the correct direction and then pick the right point. 9 at a is 90% - it can be undercut at 14. 9 at 13 is 95% (Shirae & Shimamura liked this point). b followed by a is also 90%, though many pros would play like this.

"△ is 100%," says Kajiwara*. "The other players are fools. The move is simplicity itself; it is easy to understand and that alone recommends it."

Otake chose to play 9.

W10 is Ishida's style--a very firm grip on territory.

B11 is a natural response.

W12: W4 is in a manhole and 12 is like sticking his head out.

B13 limits White's expansion on the bottom.

W14 gives White a framework.

At 15 Shirae asked for opinions from the group. i is too far; j is no good, since White can erase the framework too easily; k is better. 15 is 100% - it is the last big point of the fuseki.

The top has not been important until now. (To advance from a 3rd line position toward another 3rd line position is not too good.)

At this point in the game Kajiwara said it was over - Black had won - period. Kajiwara said that Black was ahead by 3 points; that they actually played 240 superfluous moves. 90% of the pros would agree that Black has a better position primarily because of W6&8. But it is perhaps a little ridiculous to give an exact number.

"How many points does White have at the bottom?" Shirae asked. Answer: White has 15 sure points plus a 50% chance for 8 more. Hence White has 15 + 4 = 19 points. Counting a similar way, Black has 13 points on the left, White has 8 in the upper left, Black has 11-13 in the upper right. Then the players judge the balance.

Black asks, "How many points do I need in the lower right?" White asks, "How many points do I have to hold Black down to in the lower right to win?" This provides the theoretical basis for conducting the fight there. The player ahead plays safe. White must do something. If he makes simple trades, the game will close up on him. Following the normal sequence (Wl, Bj, Wm, Bn, Wo, Bp, Wq, Br), Black loses in the lower right but his moves have more potential on the left. If White tries to make ideal shape at the top (s/t), Black can foil him at u. If White goes to v, Black will be content to let him go to s. The hard thing about Go is that you can't make 2 moves in a row.

In the lower right, points around h don't work, so Ishida attacked at 16. Small life is not enough. The light move at 22 is best to erase.

---

*Kajiwara Takeo, 9-dan, is perhaps the best known theorist and commentator among the Japanese pros. He is noted for his categorical and seemingly outrageous opinions.

ANSWER TO COVER PROBLEM

The first point to notice here is that the five black stones marked ▲ cannot be captured by the so-called "tsuru-no-Sugomori" or crane-nest tactic as long as the point "f" has not been filled, i.e. Wa, Bb, Wc,Bd, We, does not capture any black stones. The second point is that the besieged white stones, which have only three liberties left after B12 as shown in Dia. 1, are in a fairly precarious position, although during the semeai fight Black is obliged to go back to B8 after White's connection at 7. However, if White first plays 1 to lock up the four black stones he will reduce their liberties to three by a move right after B8 and win the semeai.

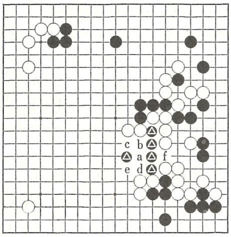
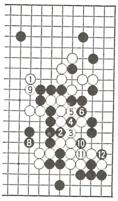
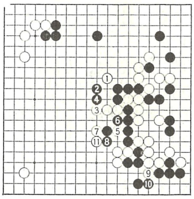


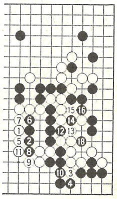
Fig. 1



Dia. 1



Dia. 2



Dia. 3

Dia. 2: Therefore, W1 is the proper line of maneuver, and B2&4 in exchange for W1&3 are regarded as natural.
White was then quick to play 5,because without this move, the sequence in Dia. 3 is conceivable and the white group would lose the semeai by one move.

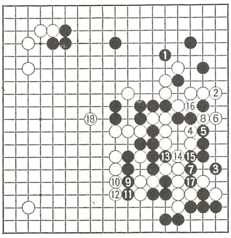
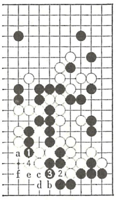


Fig. 2



Dia. 4

Fig. 2: When the game reached the stage shown in Fig. 2, Black directed his spearhead at the white group in the northeast section of the board with B1. Following the sequence from W2-16 is like watching a serpent-tiger fight. But it is apparent that White is taking the upper hand when he plays W18.

Dia. 4: For those who still doubt White's decisive victory in the semeai fight this diagram will explain why W5 in Dia. 2 was absolutely necessary. When Black extends to 1, White will play "b" which will mean the death of the four black stones through the sequence Wb, Bc, Wd, Be, and Wf. If Black makes a mending move at "b" to avoid this, White will capture Black's eight stones with a move at "a".

Omissions in last issue: The cover photos of Kim, Kang, and Phipps were by Eric Vella of San Francisco. The article about the U.S. Championships was written by Herb Doughty of the Berkeley Go Club and Tournament Director of the Western Championships.

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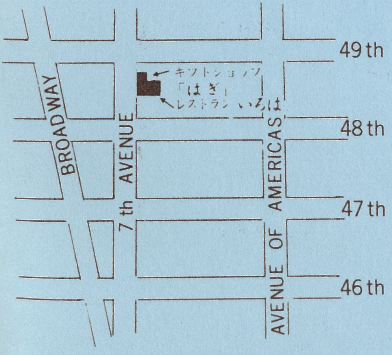

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We never forget how important you are.

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